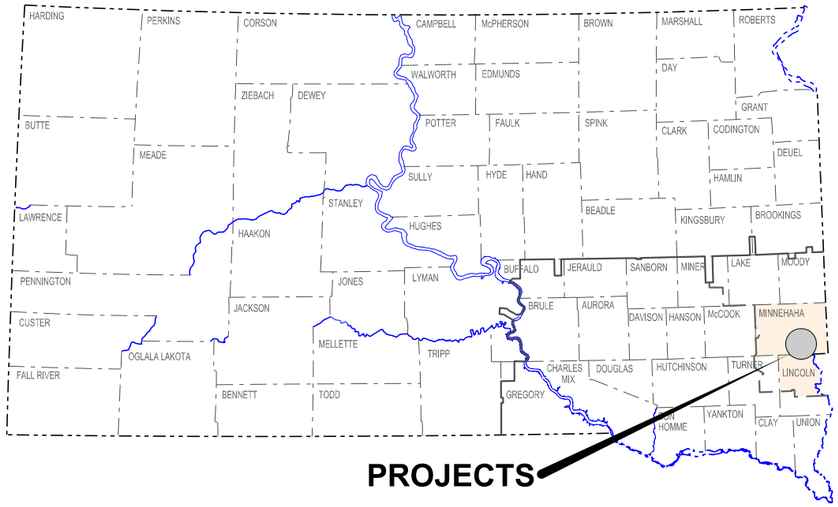


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

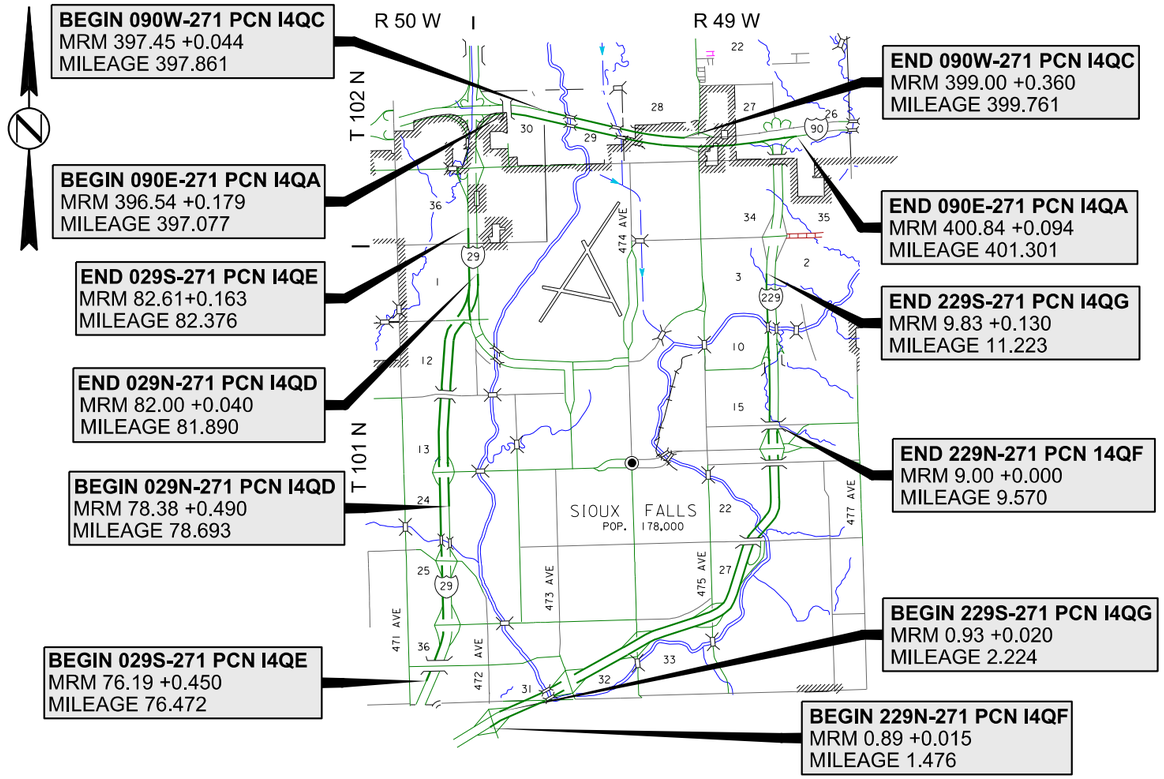
PROJECTS
090 E–271, 090 W–271, 029 N–271, 029 S–271, 229 N–271 & 229 S–271
INTERSTATES 90, 29 & 229
MINNEHAHA & LINCOLN COUNTIES

GRADING, REPROFING DITCH, SHOULDER SHAPING, CULVERT, GUTTER REPLACEMENT, EROSION CONTROL & RIPRAP
PCN I4QA, I4QC, I4QD, I4QE, I4QF & I4QG

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2017 SF Area Erosion Plans	1	27

Plotting Date: 05/19/2017

INDEX OF SHEETS



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MILEAGE 397.861

BEGIN 090E-271 PCN I4QA
MRM 396.54 +0.179
MILEAGE 397.077

END 029S-271 PCN I4QE
MRM 82.61+0.163
MILEAGE 82.376

END 029N-271 PCN I4QD
MRM 82.00 +0.040
MILEAGE 81.890

BEGIN 029N-271 PCN I4QD
MRM 78.38 +0.490
MILEAGE 78.693

BEGIN 029S-271 PCN I4QE
MRM 76.19 +0.450
MILEAGE 76.472

END 090W-271 PCN I4QC
MRM 399.00 +0.360
MILEAGE 399.761

END 090E-271 PCN I4QA
MRM 400.84 +0.094
MILEAGE 401.301

END 229S-271 PCN I4QG
MRM 9.83 +0.130
MILEAGE 11.223

END 229N-271 PCN 14QF
MRM 9.00 +0.000
MILEAGE 9.570

BEGIN 229S-271 PCN I4QG
MRM 0.93 +0.020
MILEAGE 2.224

BEGIN 229N-271 PCN I4QF
MRM 0.89 +0.015
MILEAGE 1.476

090W-271 ADT(2016) 9,125
090E-271 ADT(2016) 9,125

029N-271 ADT(2016) 25,475
029S-271 ADT(2016) 22,025

229N-271 ADT(2016) 21,915
229S-271 ADT(2016) 21,915

STORM WATER PERMIT
Receiving Waters: Big Sioux River
Area Disturbed: 3.95 Acres
Total Project Area: 3.95 Acres
Latitude: 43.5446 N (Google Maps)
Longitude: -96.7311 W (Google Maps)

ESTIMATE OF QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2017 SF Area Erosion Plans	2	27

090E-271 PCN I4QA

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0600	Remove Fence	900	Ft
110E7500	Remove Pipe for Reset	16	Ft
110E7510	Remove Pipe End Section for Reset	1	Each
120E0010	Unclassified Excavation	1,000	CuYd
120E0600	Contractor Furnished Borrow Excavation	111	CuYd
120E6300	Water for Vegetation	31.3	MGal
230E0020	Contractor Furnished Topsoil	17	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
450E9000	Reset Pipe	16	Ft
450E9001	Reset Pipe End Section	1	Each
620E0030	Type 3 Right-of-Way Fence	900	Ft
620E1020	2 Post Panel	2	Each
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
700E0210	Class B Riprap	48.0	Ton
730E0251	Special Permanent Seed Mixture 1	30	Lb
732E0200	Fiber Mulching	0.4	Ton
734E0042	Soil Stabilizer	3,472.3	SqYd
734E0103	Type 3 Erosion Control Blanket	2,547	SqYd
734E0133	Type 3 Turf Reinforcement Mat	237.3	SqYd
734E0154	12" Diameter Erosion Control Wattle	120	Ft
734E0510	Shaping for Erosion Control Blanket	1,265	Ft
831E0110	Type B Drainage Fabric	82	SqYd

090W-271 PCN I4QC

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow Excavation	28	CuYd
120E4100	Reprofiling Ditch	5.0	Sta
120E6300	Water for Vegetation	8.9	MGal
230E0020	Contractor Furnished Topsoil	6	CuYd
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
730E0251	Special Permanent Seed Mixture 1	9	Lb
732E0200	Fiber Mulching	0.1	Ton
734E0042	Soil Stabilizer	1,002.1	SqYd
734E0103	Type 3 Erosion Control Blanket	444	SqYd
734E0133	Type 3 Turf Reinforcement Mat	102.2	SqYd
734E0154	12" Diameter Erosion Control Wattle	70	Ft
734E0510	Shaping for Erosion Control Blanket	500	Ft

029N-271 PCN I4QD

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0010	Unclassified Excavation	144	CuYd
120E0600	Contractor Furnished Borrow Excavation	225	CuYd
120E6300	Water for Vegetation	35.0	MGal
230E0020	Contractor Furnished Topsoil	141	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
450E4759	18" CMP 16 Gauge, Furnish	50	Ft
450E4760	18" CMP, Install	50	Ft
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
730E0251	Special Permanent Seed Mixture 1	34	Lb
732E0200	Fiber Mulching	1.0	Ton
734E0042	Soil Stabilizer	3,880.0	SqYd
734E0103	Type 3 Erosion Control Blanket	2,075	SqYd
734E0133	Type 3 Turf Reinforcement Mat	302.2	SqYd
734E0154	12" Diameter Erosion Control Wattle	220	Ft
831E0110	Type B Drainage Fabric	867	SqYd

029S-271 PCN I4QE

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0600	Contractor Furnished Borrow Excavation	17	CuYd
120E4100	Reprofiling Ditch	1.5	Sta
120E6300	Water for Vegetation	5.0	MGal
230E0020	Contractor Furnished Topsoil	41	CuYd
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
730E0251	Special Permanent Seed Mixture 1	5	Lb
732E0200	Fiber Mulching	0.2	Ton
734E0042	Soil Stabilizer	560.0	SqYd
734E0103	Type 3 Erosion Control Blanket	289	SqYd
734E0133	Type 3 Turf Reinforcement Mat	244.4	SqYd
734E0154	12" Diameter Erosion Control Wattle	70	Ft
734E0510	Shaping for Erosion Control Blanket	345	Ft

229N-271 PCN I4QF

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E0300	Remove Concrete Curb and/or Gutter	66	Ft
120E0010	Unclassified Excavation	25	CuYd
120E0600	Contractor Furnished Borrow Excavation	11	CuYd
120E6300	Water for Vegetation	80.6	MGal
230E0020	Contractor Furnished Topsoil	38	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
380E6110	Insert Steel Bar in PCC Pavement	25	Each
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
650E4695	Type P9.5 Concrete Gutter	66	Ft
700E0210	Class B Riprap	12.0	Ton
730E0251	Special Permanent Seed Mixture 1	78	Lb
732E0200	Fiber Mulching	0.8	Ton
734E0042	Soil Stabilizer	9,012.3	SqYd
734E0103	Type 3 Erosion Control Blanket	2,803	SqYd
734E0154	12" Diameter Erosion Control Wattle	30	Ft
734E0510	Shaping for Erosion Control Blanket	3,153	Ft
831E0110	Type B Drainage Fabric	22	SqYd

229S-271 PCN I4QG

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
120E0010	Unclassified Excavation	53	CuYd
120E4100	Reprofiling Ditch	2.0	Sta
120E6300	Water for Vegetation	3.5	MGal
230E0020	Contractor Furnished Topsoil	17	CuYd
634E0010	Flagging	5.0	Hour
634E0110	Traffic Control Signs	382.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0285	Type 3 Barricade, 8' Double Sided	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
700E0210	Class B Riprap	75.0	Ton
730E0251	Special Permanent Seed Mixture 1	3	Lb
732E0200	Fiber Mulching	0.1	Ton
734E0042	Soil Stabilizer	387.7	SqYd
734E0103	Type 3 Erosion Control Blanket	258	SqYd
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0510	Shaping for Erosion Control Blanket	290	Ft
831E0110	Type B Drainage Fabric	120	SqYd

ESTIMATE OF QUANTITIES (CONTINUED)
(FOR INFORMATION ONLY)

BID ITEM NUMBER	ITEM	090 E- 271 PCN I4QA Minnehaha	090 W- 271 PCN I4QC Minnehaha	029 N - 271 PCN I4QD Minnehaha	029 S - 271 PCN I4QE Minnehaha	229 N - 271 PCN I4QF Lincoln & Minnehaha	229 S - 271 PCN I4QG Lincoln & Minnehaha	TOTAL QUANTITY
009E0010	Mobilization	◄---------- LUMP SUM ----------►						Lump Sum
110E0300	Remove Concrete Gutter	----	----	----	----	66	----	66 Ft
110E0600	Remove Fence	900	----	----	----	----	----	900 Ft
110E7500	Remove Pipe for Reset	16	----	----	----	----	----	16 Ft
110E7510	Remove Pipe End Section for Reset	1	----	----	----	----	----	1 Each
120E0010	Unclassified Excavation	1000	----	144	----	25	53	1,222 CuYd
120E0600	Contractor Furnished Borrow Excavation	111	28	225	17	11	----	392 CuYd
120E4100	Reprofile Ditch	----	5.0	----	1.5	----	2.0	8.5 Sta
120E6300	Water for Vegetation	31.3	8.9	35.0	5.0	80.6	3.5	164.3 Mgal
230E0020	Contractor Furnished Topsoil	17	6	141	41	38	17	260 CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	----	Lump Sum	----	Lump Sum	----	Lump Sum
250E0020	Incidental Work, Grading	----	----	Lump Sum	----	----	----	Lump Sum
380E6110	Install Steel Bar in PCC Pavement	----	----	----	----	25	----	25 Each
450E4759	18" CMP 16 Gauge, Furnish	----	----	50	----	----	----	50 Ft
450E4760	18" CMP, Install	----	----	50	----	----	----	50 Ft
450E5406	18" CMP Safety End, Furnish	----	----	2	----	----	----	2 Each
450E5407	18" CMP Safety End, Install	----	----	2	----	----	----	2 Each
450E9000	Reset Pipe	16	----	----	----	----	----	16 Ft
450E9001	Reset Pipe End Section	1	----	----	----	----	----	1 Each
620E0030	Type 3 Right-of-Way Fence	900	----	----	----	----	----	900 Ft
620E1020	2 Post Panel	2	----	----	----	----	----	2 Each
634E0010	Flagging	5	5	5	5	5	5	30 Hour
634E0110	Traffic Control Signs	382	382	382	382	382	382	2,292.0 SqFt
634E0120	Traffic Control, Miscellaneous	◄---------- LUMP SUM ----------►						Lump Sum
634E0285	Type 3 Barricade, 8' Double Sided	1	1	1	1	1	1	6 Each
634E0420	Type C Advance Warning Board	1	1	1	1	1	1	6 Each
650E4695	Type P9.5 Gutter	----	----	----	----	66	----	66 Ft
700E0210	Class B Riprap	48.0	----	----	----	12.0	75.0	135.0 Ton
730E00251	Special Permanent Seed Mixture 1	30	9	34	5	78	3	159 Lb
732E0200	Fiber Mulching	0.4	0.1	1.0	0.2	0.8	0.1	2.6 Ton
734E0042	Soil Stabilizer	3472.3	1002.1	3880.0	560.0	9012.3	387.7	18,314.4 SqYd
734E0103	Type 3 Erosion Control Blanket	2547	444	2075	289	2803	258	8,416 SqYd
734E0133	Type 3 Turf Reinforcement Mat	237.3	102.2	302.2	244.4	----	----	886.1 SqYd
734E0154	12" Diameter Erosion Control Wattle	120	70	220	70	30	100	610 Ft
734E0510	Shaping for Erosion Control Blanket	1265	500	----	345	3153	290	5,553 Ft
831E0110	Type B Drainage Fabric	82	----	867	----	22	120	1,091 SqYd

ENVIRONMENTAL COMMITMENTS

An Environmental Commitment is a measure that SDDOT commits to implement in order to avoid, minimize, and/or mitigate a real or potential environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency mentioned below with permitting authority can influence a project if perceived environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office. The environmental commitments associated with this project are as follows:

COMMITMENT C: WATER SOURCE

The Contractor shall not withdraw water with equipment previously used outside the State of South Dakota without prior approval from the SDDOT Environmental Office. Thoroughly wash all construction equipment before entering South Dakota to reduce the risk of invasive species introduction into the project vicinity.

The Contractor shall not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor shall obtain the necessary permits from the regulatory agencies such as the Department of Environment and Natural Resources (DENR) and the United States Army Corps of Engineers (COE) prior to executing water extraction activities.

COMMITMENT E: STORM WATER

Construction activities constitute 1 acre or more of earth disturbance.

Action Taken/Required:

The DENR and the US Environmental Protection Agency (EPA) have issued separate general permits for the discharge of storm water runoff. The DENR permit applies to discharges on state land and the EPA permit applies to discharges on federal or reservation land. The Contractor is advised this project is regulated under the Phase II Storm Water Regulations and must receive coverage under the General Permit for Construction Activities. A Notice of Intent (NOI) will be submitted to DENR a minimum of 15 days prior to project start by the DOT Environmental Office. A letter must be received from DENR that acknowledges project coverage under this general permit before project start. The Contractor is advised that permit coverage may also be required by off-site activities, such as borrow and staging areas, which are the responsibility of the Contractor.

The Contractor shall adhere to the "Special Provision Regarding Storm Water Discharges to Waters of the State".

A major component of the storm water construction permits is development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which is a joint effort and responsibility of the SDDOT and the Contractor. Erosion control measures and best management practices will be implemented in accordance with the SWPPP. The SWPPP is a dynamic document and is to be available on-site at all times.

Information on storm water permits and SWPPPs are available on the following websites:

SDDOT:
http://www.sddot.com/business/environmental/stormwater/Default.aspx

DENR: http://www.denr.sd.gov/des/sw/stormwater.aspx

EPA: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Contractor Certification Form:

The "Department of Environmental and Natural Resources – Contractor Certification Form" (SD EForm – 2110LDV1-ContractorCertification.pdf) shall be completed by the Contractor or their certified Erosion Control Supervisor after the award of the contract. Work may not begin on the project until this form is signed.

The form certifies under penalty of law that the Contractor understands and will comply with the terms and conditions of the Surface Water Discharge General Permit for Storm Water Discharges Associated with Construction Activities for the Project.

The online form can be found at:
http://denr.sd.gov/des/sw/eforms/E2110LDV1-ContractorCertification.pdf

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor shall furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) shall be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Environment and Natural Resources.

The waste disposal site(s) shall not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements shall apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials shall be buried in a trench completely separate from wood debris. The final cover over the construction and/or demolition debris shall consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW shall be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor shall control the access to waste disposal sites not within the Public ROW through the use of fences, gates, and placement of a sign or signs at the entrance to the site stating "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period of time not to exceed the duration of the project. Prior to project completion, the waste shall be removed from view of the ROW or buried and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) shall be incidental to the various contract items.

COMMITMENT I: HISTORICAL PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historical Preservation Office (SHPO or THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require review of cultural resources impacts. This work includes, but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor shall arrange and pay for a cultural resource survey and/or records search. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor shall provide ARC with the following: a topographical map or aerial view on which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor shall submit the records search or cultural resources survey report and if the location of the site is within the current geographical or historic boundaries of any South Dakota reservation to SDDOT Environmental Engineer, 700 East Broadway Avenue, Pierre, SD 57501-2586 (605-773-3180). SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

SHPO/THPO review does not relieve the Contractor of the responsibility for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor shall provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

SCOPE OF WORK

This project consists of reprofiling ditches, reshaping shoulders, construction of maintenance crossover, pipe repair, fence replacement, and erosion control.

SEQUENCE OF OPERATIONS

Lane closures and/or narrowing of lanes will **NOT** be allowed as follows:

- 6:30 a.m. to 8:30 a.m.
- 4:00 p.m. to 7:00 p.m.

Traffic shall be returned to the normal driving lanes during nonworking hours. Approval from the Engineer will be required to complete work at night.

UTILITIES

The Contractor shall contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It shall be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

Utilities are not planned to be affected on this project. If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor shall contact the Project Engineer to determine modifications that will be necessary to avoid utility impacts.

COORDINATION BETWEEN CONTRACTORS

A separate contract for Project No. 000I-271, PCN I4K9 has been awarded to another Contractor for Mowing of the Interstate ROW of this project.

A separate contract for Project No. IM 0293(108)78, PCN 05NQ has been awarded to another Contractor for Pavement Restoration on Interstate 29 from MRM 78 to MRM 86.

The Contractor shall schedule his work so as not to interfere with or hinder the progress of the work performed by other Contractors on these projects.

TIE BOLTS FOR RCP CULVERTS

Tie Bolts shall be installed at the inlet and outlet on all sections of reset culvert and on reset culvert ends. Connection shall be made from the first section left in place to the first reset section and to all reset sections.

For informational purposes:

Field drilling will be required to install the tie bolts on reset culvert, on reset culvert ends.

Cost for removing tie bolts for reuse, drilling tie bolt holes and providing, installing and reinstalling tie bolts shall be incidental to the contract unit prices for resetting RCP Culverts and End Sections.

REPROFILING DITCH

The following ditches shall be cleaned out to allow drainage through the ditch.

- West side of the 29 S-271 MRM 76.640
- West side of 229 S – 271 MRM 0.95
- North side of 90 W- 271 MRM 399.31 to 399.36 On Ramp

The total estimated length of ditch cleanout is 850 feet (8.5 stations).

These locations shall be restored to the existing typical ditch section.

Areas to be cleaned out will be staked by the Engineer prior to cleanout.

Disturbed areas will be restored to the satisfaction of the Engineer. Disturbed areas will be seeded by the Contractor.

Cost for this work, including labor and equipment necessary to remove and dispose of the silt and vegetation and reshape the ditch shall be included in the contract unit price per station for Reprofiling Ditch.

Cost for seeding and mulching shall be included in the contract unit prices for the respective items.

MAINTENANCE CROSSOVERS

Maintenance crossovers shall be constructed as shown in the plans. The maintenance crossovers noted with “Retain” are maintenance crossovers at the same location and approximately the same elevation as the existing crossovers; therefore small quantities of excavation or embankment are required at these locations. The maintenance crossover subgrade shall be constructed to conform to the details on Standard Plate 120.04.

Excavation quantities for the maintenance crossovers are included in the earthwork balance notes on the profile sheets.

The Engineer will establish the exact location of the new maintenance cross over for the contractor.

CONTRACTOR FURNISHED BORROW EXCAVATION

The Contractor shall provide a suitable site for Contractor furnished borrow excavation material. The Contractor is responsible for obtaining all required permits and clearances for the borrow site. The plans quantity for “Contractor Furnished Borrow Excavation” as shown in the Estimate of Quantities will be the basis of payment for this item.

Restoration of the Contractor furnished borrow excavation site shall be the responsibility of the Contractor.

INCIDENTAL WORK, GRADING

On I-29 MRM 82.251 under Russell Street structure the contractor shall perform the following work:

- Grade and area of 52’ wide by 150’ long x 6” of depth, the excavation for this will be paid for under unclassified excavation.
- Install drainage fabric, paid under Type B drainage fabric.
- Place and shape state furnished asphalt millings in the area that was excavated. Provide engineer 3 day notice to coordinate work with state forces.

REMOVE AND RESET TYPE 2 OBJECT MARKERS

The Contractor will be required to remove prior to work and reset after the work any Type 2 object markers delineating the pipe ends. Cost for this work shall be incidental to the contract unit prices for the various items.

REMOVE AND RESET DELINEATORS

The Contractor will be required to remove prior to shoulder shaping work and reset after the work any delineators that are delineating the roadway. Cost for this work shall be incidental to the contract unit prices for the various items.

REMOVE FENCE

The Contractor shall remove the existing right-of-way fence that is to be replaced as designated in the plans and/or as ordered by the Engineer.

Limited Access Security - All fence removed during any one working day is to be replaced during the same day if livestock are being restrained.

FENCE ALIGNMENT

Where fence is being removed and replaced, fence shall be installed on the same alignment as existing. It shall be the Contractor’s responsibility to preserve the fence alignment.

TYPE 3 RIGHT-OF-WAY FENCE

The Contractor shall furnish new posts. Install alternate wood and steel posts at 16'-6" spacing for Type 3 Right-of-Way Fence.

NEW POST PANELS

Existing post panels shall be replaced. Existing 5 Post and 4 Post Panels shall be replaced with a combination of 2 Post and 3 Post Panels as determined by the Engineer.

The number of 2 Post and 3 Post Panels will be the actual number installed and will be paid for at the contract unit price per each.

TABLE OF FENCING QUANTITIES

LANE	INTERSTATE 90 PSEUDO MRM (DMI)	to	PSEUDO MRM (DMI)	REMOVE FENCE FT	TYPE 3 R/W FENCE FT	2 POST PANEL EACH
EB	398.07	to	398.24	900	900	2
			I90E TOTALS:	**900**	**900**	**2**

TABLE OF CONCRETE GUTTER REMOVAL

Location	Quantity	Description
I229 – Louise NB	66’	Remove from SF 5’ Drop Inlet to the North

CONTRACTOR FURNISHED TOPSOIL

It is anticipated that a larger volume of topsoil will be needed for the new grade than can be salvaged from the existing grade. The Contractor will be required to furnish and place 4 inches of topsoil on roadway inslopes and areas as determined by the Engineer during construction.

Contractor furnished topsoil shall be free from clay lumps, stones, coarse gravel, or similar objects larger than 1/2 inch in diameter. Brush, stumps, roots, wood, objectionable weeds, litter, or any other material which may be harmful to plant growth will not be allowed. Organic material shall be decomposed.

All costs to furnish and place the Contractor furnished topsoil shall be incidental to the contract unit price per cubic yard for "Contractor Furnished Topsoil".

REMOVE AND REPLACE TOPSOIL

Special conditions for the following shoulders:

- East side of the 29 N-271 MRM 81.8 to MRM 82.04
- East side of 229 N – 271 MRM 3.213 Ramp
- East side of 229 N – 271 MRM 5.95 to 6.30
- East side of 229 N – 271 MRM 8.61 to MRM 8.70
- East side of 229 N – 271 MRM 8.86 to MRM 9.00

These locations shall have topsoil stripped and shaped for approximately 16 feet.

After topsoil is stripped the top 6 feet needs to be re-shaped at a 10:1 slope to allow drainage to shed from roadway.

Areas to be shaped will be staked by the Engineer.

Cost for this work, including labor and equipment necessary to remove and replace topsoil and reshape the shoulder shall be included in the contract unit price per mile for shoulder shaping.

Cost for seeding, mulching, soil stabilizer, water for vegetation and blanket shall be included in the contract unit prices for the respective items.

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits.

Special Permanent Seed Mixture 1 shall consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana	14
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	6
Indiangrass	Holt, Tomahawk	6
Big Bluestem	Bison, Bonilla, Champ, Pawnee, Sunnyview	6
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	42

WATER FOR VEGETATION

Water for vegetation consists of applying water to seeded areas to enhance germination and/or root growth. When watering, use the following guidelines:

Immediately after seeding:

- Keep the topsoil moist but not excessively wet until the seed has germinated.
- Water a minimum of 3 days a week for 2 weeks preferably watering 2 or 3 times a day in small quantities.
- Use fine spray and low pressure to avoid topsoil wash and to prevent uncovering buried seeds.

After emergence:

- Topsoil shall be kept thoroughly moistened by sprinkling, as necessary, for 6 weeks. After the 6 week period, an inspection shall be made to determine if grass is established enough to suspend watering. Continue watering until grass has been thoroughly established.
- Never apply water at a rate faster than the topsoil can absorb.
- Water during early morning hours or early evening hours.
- Do not water when rain is forecasted for the area.
- If rainfall occurs, suspend watering according to rainfall amount.

An estimated 9 Gallons of water per square yard of seeding area was used to compute the quantity for the bid item "Water for Vegetation".

All costs for furnishing and applying the water including hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per MGal for "Water for Vegetation".

FIBER MULCHING

Fiber mulch shall be applied in a separate operation following permanent seeding.

An additional 2% by weight of tackifier shall be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier shall be guar gum. If the product selected has synthetic tackifier included, then the additional 2% of tackifier shall be synthetic.

Fiber mulch shall be applied at the rate of 3,000 pounds per acre.

The Contractor shall allow the fiber mulch to cure a minimum of 18 hours prior to watering or any storm event to ensure proper cohesion between the soil and fiber particles.

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials shall be incidental to the contract unit price per ton for "Fiber Mulching".

The fiber mulch provided shall be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

Fiber mulch is included for every location for areas outside of erosion control blanket and erosion control mat. Plans quantity will be basis of payment.

SOIL STABILIZER

Soil stabilizer shall be applied on the areas listed in the table and any other areas deemed necessary by the Engineer. The soil stabilizer limits shall be adjusted as necessary by the Engineer during construction.

The Contractor shall apply soil stabilizer according to the manufacturer's application instructions and at the rate specified in the list of approved soil stabilizers.

Wood fiber mulch that contains a green dye shall be mixed with the soil stabilizer to be used as a tracer when the soil stabilizer is applied hydraulically. Wood fiber mulch shall be added at a rate of 300 pounds per acre to all of the approved soil stabilizers listed in the table except for the Pam-12 Plus product. The wood fiber mulch shall be a 100% wood fiber product and does not need to contain a tackifier.

All costs for furnishing and applying the soil stabilizer including wood fiber mulch, hauling, materials, equipment, labor, and incidentals necessary shall be paid for at the contract unit price per Square Yard for "Soil Stabilizer".

The soil stabilizer shall be from the list below or an approved equal:

Product	Manufacturer
StarTak 600 Applied at a rate of 150 Lb/Acre	Chemstar Products Company Minneapolis, MN Phone: 1-800-328-5037 www.chemstar.com
Pam-12 Plus Applied at a rate of: Slope None to 4:1 1000 Lb/Acre 4:1 to 3:1 1000 to 2000 Lb/Acre 3:1 to 2:1 2000 to 3000 Lb/Acre	ENCAP, LLC Green Bay, WI Phone: 1-877-405-5050 http://professional.encap.net/
M-Binder Applied at a rate of 150 Lb/Acre	Ecology Controls Carpinteria, CA Phone: 1-805-684-0436 www.ssseeds.com
FiberRX Applied at a rate of: Slope None to 4:1 50 Lb/Acre 3:1 60 Lb/Acre 2:1 70 Lb/Acre 1:1 or steeper 80 Lb/Acre	Hydrostraw, LLC Manteno, IL Phone: 1-800-545-1755 hydrostraw.com
Enviropam Applied at a rate of 9 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com
HydraTack, Tack Plus, Tack-P, or Tack-P Plus Applied at a rate of 30 Lb/Acre	Innovative Turf Solutions, LLC Cincinnati, OH Phone: 1-513-317-8311 www.innovativeturfsolutions.com

SOIL STABILIZER (CONTINUED)

Fl-1045 Hydrobond or Fl-1046 Hydrobond Applied at a rate of 15 Lb/Acre	JRM Chemical, Inc. Cleveland, OH Phone: 1-216-475-8488 www.soilmoist.com
HF5000 Tack Applied at a rate of 60 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
R-Tack Applied at a rate of 150 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
SpecTac Applied at a rate of: Slope None 30 to 80 Lb/Acre 4:1 50 to 100 Lb/Acre 3:1 80 to 120 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
Super Tack Applied at a rate of 60 Lb/Acre	Rantec Corporation Ranchester, WY Phone: 1-307-655-9565 www.ranteccorp.com
EarthGuard SFM Applied at a rate of 60 LB/Acre (approx. 6 Gallons/Acre)	Terra Novo Inc. Bakersfield, CA Phone: 1-661-747-5956 www.terranovo.com

EROSION CONTROL WATTLE

Erosion control wattles for restraining the flow of runoff and sediment shall be installed at locations noted in the table and at locations determined by the Engineer during construction. Refer to Standard Plate 734.06 for details.

The Contractor shall provide certification that the erosion control wattles do not contain noxious weed seeds.

Erosion control wattles shall remain on the project to decompose.

The erosion control wattle provided shall be from the approved product list. The approved product list for erosion control wattle may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

EROSION CONTROL BLANKET

Erosion control blanket shall be installed 8 feet wide at the locations noted and at locations determined by the Engineer during construction.

The erosion control blanket provided shall be from the approved product list. The approved product list for erosion control blanket may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

SHAPING FOR EROSION CONTROL BLANKET

The ditches shall be shaped for the erosion control blanket as specified on Standard Plate 734.01.

TURF REINFORCEMENT MAT

Turf Reinforcement Mat shall be installed at locations shown in the attached table at an 8 foot width, and at locations determined by the Engineer during construction. The Contractor shall use a turf reinforcement mat from the approved products list. The approved product list for turf reinforcement mat may be viewed at the following internet site:

http://sddot.com/business/certification/products/Default.aspx

STEEL BAR INSERTION

Steel bars shall conform to Section 1010.

Locations and quantity of concrete gutter repair are subject to change in the field at the discretion of the Engineer. The Contractor will be responsible for ordering the actual quantity of steel bars necessary to complete the work.

The Contractor shall insert the steel bars No. 5 x 24” epoxy coated deformed tie bars for longitudinal joints) into drilled holes in the existing concrete pavement. An epoxy resin adhesive must be used to anchor the steel bar in the drilled hole as per Section 380.3 C.1.

Steel bars shall be inserted in the longitudinal joint on 30" centers and shall be a minimum of 15" from either transverse joint. It will be necessary to laterally adjust the location of some of the inserted steel bars when the dimensions above interfere with existing steel bar locations.

A rigid frame or mechanical device will be required to guide the drill to ensure proper horizontal and vertical alignment of the steel bars in the drilled holes.

SAW AND SEAL JOINTS

All longitudinal and transverse joints at concrete repair areas shall be sawed and sealed.

Joint sealing shall conform to Section 380.3 P.

Longitudinal joints in urban sections shall be sealed with Hot Poured Elastic Joint Sealer.

Acceptance of the Hot Poured Elastic Joint Sealer will be based on visual inspection by the Engineer.

Cost for sawing and sealing of the longitudinal construction joint shall be incidental to the contract unit price Type P9.5 Gutter.

REPLACING GUTTER

Damaged gutter around the following drop inlets shall be sawed full depth and removed and replaced with concrete gutter at the following location:

Location	Quantity	Description
I229 – Louise SB	66’	Remove from SF 5’ Drop Inlet to the North

Lengths of gutter removal shall be as directed by the Engineer.

New concrete gutter shall be tied to adjacent PCC Pavement and existing concrete curb and gutter with deformed tie bars.

GENERAL MAINTENANCE OF TRAFFIC

Sufficient traffic control devices have been included in these plans to sign one workspace on each route. If the Contractor elects to work on additional sites simultaneously, the cost for additional traffic control devices shall be incidental to the contract unit price per square foot for Traffic Control Signs.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		EXPRESSWAY / INTERSTATE			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 65	1	36" x 48"	12.0	12.0
R2-1	SPEED LIMIT 45	7	36" x 48"	12.0	84.0
R2-6aP	FINES DOUBLE (plaque)	1	36" x 24"	6.0	6.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	5	48" x 48"	16.0	80.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W5-4	RAMP NARROWS	1	48" x 48"	16.0	16.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	1	48" x 48"	16.0	16.0
W21-5a	LEFT or RIGHT SHOULDER CLOSED	2	48" x 48"	16.0	32.0
W21-5b	LEFT or RIGHT SHOULDER CLOSED AHEAD	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	1	48" x 24"	8.0	8.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			382.0

TYPE 3 BARRICADES

ITEM DESCRIPTION	QUANTITY
Type 3 Barricade, 8' Double Sided	1 Each

ARROW BOARDS

ITEM DESCRIPTION	QUANTITY
Type C Advance Warning Arrow Board	1 Each

STORM WATER POLLUTION PREVENTION PLAN CHECKLIST

*(The numbers right of the title headings are **reference numbers** to the GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES*

SITE DESCRIPTION (4.2 1)

- **Project Limits: See Title Sheet (4.2 1.b)**
- **Project Description: See Title Sheet (4.2 1.a.)**
- **Site Map(s): See Title Sheet and Plans (4.2 1.f. (1)-(6))**
- **Major Soil Disturbing Activities** (check all that apply)
  - ☐ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☒ Cutting and filling
  - ☐ Other (describe):
- **Total Project Area** 3.95 Acres **(4.2 1.b.)**
- **Total Area To Be Disturbed** 172,200 SqFt - 3.95 Acres **(4.2 1.b.)**
- **Existing Vegetative Cover (%)** 75
- **Soil Properties:** AASHTO Soil or USDA-NRCS Soil Series Classification AASHTO A-7-6 & USDA: Silty clay loam, silt loam **(4.2 1. d.)**
- **Name of Receiving Water Body/Bodies** Big Sioux River **(4.2 1.e.)**

ORDER OF CONSTRUCTION ACTIVITIES (4.2 1.c.)

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. Initiation of final or temporary stabilization may exceed the 14-day limit if earth disturbing activities will be resumed within 21 days.)

- **Remove and restore topsoil.**
- **Fix Culverts or Erosion Areas**
- **Grading where necessary**
- **Install Rip Rap where necessary.**
- **Seed disturbed areas.**
- **Install blanket or turf matt.**
- **Fiber mulch areas outside of blanket and turf matt.**
- **Water Vegetation.**

EROSION AND SEDIMENT CONTROLS (4.2 2.a.(1)(a)-(f))

(Check all that apply)

- **Stabilization Practices (See Detail Plan Sheets)**
  - ☐ Temporary Seeding (Cover Crop Seeding)
  - ☒ Permanent Seeding
  - ☐ Sodding
  - ☐ Planting (Woody Vegetation for Soil Stabilization)
  - ☐ Mulching (Grass Hay or Straw)
  - ☒ Hydraulic Mulch (Wood Fiber Mulch)
  - ☒ Soil Stabilizer
  - ☐ Bonded Fiber Matrix
  - ☒ Erosion Control Blankets or Mats
  - ☐ Vegetation Buffer Strips
  - ☐ Roughened Surface (e.g. tracking)
  - ☐ Dust Control
  - ☐ Other:
- **Structural Temporary Erosion and Sediment Controls**
  - ☐ Silt Fence
  - ☐ Floating Silt Curtain
  - ☐ Straw Bale Check
  - ☐ Temporary Berm
  - ☐ Temporary Slope Drain
  - ☒ Straw Wattles or Rolls
  - ☒ Turf Reinforcement Mat
  - ☒ Rip Rap
  - ☐ Gabions
  - ☐ Rock Check Dams
  - ☐ Sediment Traps/Basins
  - ☐ Inlet Protection
  - ☐ Outlet Protection
  - ☐ Surface Inlet Protection (Area Drain)
  - ☐ Curb Inlet Protection
  - ☐ Stabilized Construction Entrances
  - ☐ Entrance/Exit Equipment Tire Wash
  - ☐ Interceptor Ditch
  - ☐ Concrete Washout Facility
  - ☐ Temporary Diversion Channel
  - ☐ Work Platform
  - ☐ Temporary Water Barrier
  - ☐ Temporary Water Crossing
  - ☐ Other:
- **Wetland Avoidance**

  Will construction and/or erosion and sediment controls impinge on regulated wetlands? Yes ☐ No ☒ If yes, the structural and erosion and sediment controls have been included in the total project wetland impacts and have been included in the 404 permit process with the USACE.
- **Storm Water Management (4.2 2.b., (1) and (2))**

  Storm water management will be handled by temporary controls outlined in "EROSION AND SEDIMENT CONTROLS" above, and any permanent controls needed to meet permanent storm water management needs in the post construction period. Permanent controls will be shown on the plans and noted as permanent.
- **Other Storm Water Controls (4.2 2.c., (1) and (2))**
  - **Waste Disposal**

    All liquid waste materials will be collected and stored in sealed metal containers approved by the project engineer. All trash and construction debris from the site will be deposited in the approved containers. Containers will be serviced as necessary, and the trash will be hauled to an approved disposal site or licensed landfill. All onsite personnel will be instructed in the proper procedures for waste disposal, and notices stating proper practices will be posted in the field office. The general Contractor's representative responsible for the conduct of work on the site will be responsible for seeing waste disposal procedures are followed.
  - **Hazardous Waste**

    All hazardous waste materials will be disposed of in a manner specified by local or state regulations or by the manufacturer. Site personnel will be instructed in these practices, and the individual designated as the Contractor's on-site representative will be responsible for seeing that these practices are followed.
  - **Sanitary Waste**

    Portable sanitary facilities will be provided on all construction sites. Sanitary waste will be collected from the portable units in a timely manner by a licensed waste management Contractor or as required by any local regulations.

MAINTENANCE AND INSPECTION (4.2 3. and 4.2 4.)

- **Maintenance and Inspection Practices**
  - Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
  - All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
  - Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches $^1/_3$ of the height of the silt fence.
  - Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
  - Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
  - All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
  - Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
  - The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance, repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

NON-STORM WATER DISCHARGES (3.0)

The following non-storm water discharges are anticipated during the course of this project (check all that apply).

- ☐ Discharges from water line flushing.
- ☐ Pavement wash-water, where no spills or leaks of toxic or hazardous materials have occurred.
- ☐ Uncontaminated ground water associated with dewatering activities.

MATERIALS INVENTORY (4.2. 2.c.(2))

The following materials or substances are expected to be present on the site during the construction period. These materials will be handled as noted under the headings "EROSION AND SEDIMENT CONTROLS" and "SPILL PREVENTION" (check all that apply).

- ☒ Concrete and Portland Cement
- ☐ Detergents
- ☐ Paints
- ☒ Metals
- ☐ Bituminous Materials
- ☐ Petroleum Based Products
- ☐ Cleaning Solvents
- ☐ Wood
- ☐ Cure
- ☐ Texture
- ☐ Chemical Fertilizers
- ☐ Other:

SPILL PREVENTION (4.2 2.c.(2))

- **Material Management**
  - Housekeeping
    - Only needed products will be stored on-site by the Contractor.
    - Except for bulk materials the contractor will store all materials under cover and in appropriate containers.
    - Products must be stored in original containers and labeled.
    - Material mixing will be conducted in accordance with the manufacturer's recommendations.
    - When possible, all products will be completely used before properly disposing of the container off-site.
    - The manufacturer's directions for disposal of materials and containers will be followed.
    - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
    - Dust generated will be controlled in an environmentally safe manner.
    - Vegetation areas not essential to the construction project will be preserved and maintained as noted on the plans.

  - Hazardous Materials
    - Products will be kept in original containers unless the container is not resealable.
    - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
    - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
    - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
    - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any storm water system or storm water treatment system.
    - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of storm water runoff.

- **Product Specific Practices (6.8)**

  - Petroleum Products
    All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled.
  - Fertilizers
    Fertilizers will be applied only in the amounts specified by the SDDOT. Once applied, fertilizers will be worked into the soil to limit the exposure to storm water. Fertilizers will be stored in an enclosed area. The contents of partially used fertilizer bags will be transferred to sealable containers to avoid spills.
  - Paints
    All containers will be tightly sealed and stored when not required for use. The excess will be disposed of according to the manufacturer's instructions and any applicable state and local regulations.
  - Concrete Trucks
    Contractors will provide designated truck washout facilities on the site. These areas must be self-contained and not connected to any storm water outlet of the site. Upon completion of construction, the area at the washout facility will be properly stabilized.

- **Spill Control Practices (4.2 2 c.(2))**

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

- For all hazardous materials stored on site, the manufacturer's recommended methods for spill cleanup will be clearly posted. Site personnel will be made aware of the procedures and the locations of the information and cleanup supplies.
- Appropriate cleanup materials and equipment will be maintained by the Contractor in the materials storage area on-site. As appropriate, equipment and materials may include items such as brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers specifically for cleanup purposes.
- All spills will be cleaned immediately after discovery and the materials disposed of properly.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- After a spill a report will be prepared describing the spill, what caused it, and the cleanup measures taken. The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring, as well as clean up instructions in the event of reoccurrences.
- The Contractor's site superintendent, responsible for day-to-day operations, will be the spill prevention and cleanup coordinator. The Contractor is responsible for ensuring that the site superintendent has had appropriate training for hazardous materials handling, spill management, and cleanup.

- **Spill Response (4.2 2 c.(2))**

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into storm water runoff and conveyance systems. If the release has impacted on-site storm water, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens storm water or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.
- Spill kits containing appropriate materials and equipment for spill response and cleanup will be maintained by the Contractor at the site.
- If oil sheen is observed on surface water (e.g. settling ponds, detention ponds, swales), action will be taken immediately to remove the material causing the sheen. The Contractor will use appropriate materials to contain and absorb the spill. The source of the oil sheen will also be identified and removed or repaired as necessary to prevent further releases.
- If a spill occurs the superintendent or the superintendent's designee will be responsible for completing the spill reporting form and for reporting the spill to SD DENR.
- Personnel with primary responsibility for spill response and clean up will receive training by the Contractor's site superintendent or designee. The training must include identifying the location of the spill kits and other spill response equipment and the use of spill response materials.
- Spill response equipment will be inspected and maintained as necessary to replace any materials used in spill response activities.

SPILL NOTIFICATION

In the event of a spill, the Contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to DENR immediately **if any one of the following** conditions exists:
  - The discharge threatens or is in a position to threaten the waters of the state (surface water or ground water).
  - The discharge causes an immediate danger to human health or safety.
  - The discharge exceeds 25 gallons.
  - The discharge causes a sheen on surface water.
  - The discharge of any substance that exceeds the ground water quality standards of ARSD (Administrative Rules of South Dakota) chapter 74:51:01.
  - The discharge of any substance that exceeds the surface water quality standards of ARSD chapter 74:51:01.
  - The discharge of any substance that harms or threatens to harm wildlife or aquatic life.
  - The discharge of crude oil in field activities under SDCL (South Dakota Codified Laws) chapter 45-9 is greater than 1 barrel (42 gallons).

To report a release or spill, call DENR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at 605-773-3231. Reporting the release to DENR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the responsible person must also contact local authorities to determine the local reporting requirements for releases. DENR recommends that spills also be reported to the National Response Center at (800) 424-8802.

CONSTRUCTION CHANGES (4.4)

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP plan (DOT 298) and drawings to reflect the needed changes. Copies of changes will be routed per DOT 298. Copies of forms and the SWPPP will be retained in a designated place for review over the course of the project.

CERTIFICATIONS

- **Certification of Compliance with Federal, State, and Local Regulations**

The Storm Water Pollution Prevention Plan (SWPPP) for this project reflects the requirements of all local municipal jurisdictions for storm water management and sediment and erosion control as established by ordinance, as well as other state and federal requirements for sediment and erosion control plans, permits, notices or documentation as appropriate.

- **South Dakota Department of Transportation**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature (See the General Permit, Section 6.9.1.C.)

- **Prime Contractor**

This section is to be executed by the General Contractor after the award of the contract. This section may be executed any time there is a change in the Prime Contractor of the project.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____

Authorized Signature

CONTACT INFORMATION

- **Contractor Information**:
  - Prime Contractor Name: _____
  - Contractor Contact Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **Erosion Control Supervisor**
  - Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **SDDOT Project Engineer**
  - Name: _____
  - Business Address: _____
  - Job Office Location: _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cell Phone: _____Fax: _____
- **SD DENR Contact Spill Reporting**
  - Business Hours Monday-Friday (605) 773-3296
  - Nights and Weekends (605) 773-3231
- **SD DENR Contact for Hazardous Materials.**
  - (605) 773-3153
- **National Response Center Hotline**
  - (800) 424-8802.

TABLE FOR EROSION CONTROL FOR 090 E-271 PCN I4QA

LOCATION	090 E-271 PCN I4QA SQUARE FOOTAGE WORK AREA	110E0600 REMOVE FENCE FT	110E7500 REMOVE PIPE FOR RESET FT	110E7510 REMOVE PIPE END FOR RESET EACH	120E0100 UNCLASSIFIED EXCAVATION CUYD	120E0600 CONTRACTOR FURNISHED BORROW EXCAVATION CUYD	120E6300 WATER FOR VEGET-ATION MGAL	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	230E0100 REMOVE AND REPLACE TOPSOIL LS	450E9000 RESET PIPE FT	450E9001 RESET PIPE END SECTION EACH	620E0030 TYPE 3 ROW FENCE FT	620E1020 2 POST PANEL EACH	700E0210 CLASS B RIPRAP TON	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SQYD	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0133 TYPE 3 TURF REINFOR-CEMENT MAT SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	734E0510 SHAPING FOR EROSION CONTROL BLANKET FT	831E0110 TYPE B DRAINAGE FABRIC SQYD
396.719	680				0	2	0.7	1							0.66	0.02	75.6	75.6	0	10	85	0
	85 x 8																	85 x 8				
397.170	2800				0	17	2.8	9							2.70	0.1	311.1	311.1	0	20	350	0
	350 x 8																	350 x 8				
397.300	1880				0	29	1.9	6							1.81	0.06	208.9	0	208.9	20	0	0
	235 x 8																		235 x 8			
398.090	25600	900			1000		25.6		LS			900	2		24.68	0.21	2844.4	2133.3		70	800	
	800x32																	800x24				
398.201	240		16	1						16	1				0.23			26.7			30	
	8 x 30																	30 x 8				
400.934	256				0	63	0.3	1						48.0	0.25	0.01	28.4	0	28.4	0	0	82
	32 x 8																		32 x 8			
	TOTALS:	900	16	1	1000	111	31.3	17	LS	16	1	900	2	48.0	30	0.4	3472.3	2547	237.3	120	1265	82

TABLE FOR EROSION CONTROL FOR 090 W-271 PCN I4QC

LOCATION	090 W-271 PCN I4QC SQUARE FOOTAGE WORK AREA	120E0600 CONTRACTOR FURNISHED BORROW EXCAVATION CUYD	120E4100 REPROFILE DITCH STA.	120E6300 WATER FOR VEGETATION MGAL	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SqYd	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0133 TYPE 3 TURF REINFORCEMENT MAT SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	734E0510 SHAPING FOR EROSION CONTROL BLANKET FT
397.494	920	28	0	0.9	6	0.89	0.01	102.2	0	102.2	20	0
	115 x 8									115 x 8		
399.31 to 399.36 Ramp	8000	0	5.0	8	0	7.71	0.09	888.9	444.4	0	50	500
	500 x 16								500 x 8			
	TOTALS:	28	5.0	8.9	6	9	0.1	1002.1	444	102.2	70	500

TABLE FOR EROSION CONTROL FOR 029 N-271 PCN I4QD

LOCATION	029 N-271 PCN I4QD SQUARE FOOTAGE WORK AREA	120E0100 UNCLASSIFIED EXCAVATION CUYD	120E0600 CONTRACTOR FURNISHED BORROW EXCAVATION CUYD	120E6300 WATER FOR VEGETATION MGAL	230E0100 REMOVE AND REPLACE TOPSOIL LS	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	450E4759 18" CMP 16 GAUGE FURNISH FT	450E760 18" CMP INSTALL FT	450E5406 18" CMP SAFETY END FURNISH EACH	450E5407 18" CMP SAFETY END INSTALL EACH	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SQYD	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0133 TYPE 3 TURF REINFOR-CEMENT MAT SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	831E0110 TYPE B DRAINAGE FABRIC SqYd
78.87 MEDIAN	3680	0	225	3.7	0	0	50	50	2	2	3.55	0.14	408.9	404	0	20	0
	80 x 46													Various			
79.72	1800	0	0	1.8	0	22	0	0	0	0	1.74	0.07	200.0	0	200	50	
	75 x 24														75 x 24		
80.76	2800	0	0	2.8	0	52	0	0	0	0	2.70	0.11	311.1	311.1	0	0	0
	175 x 16													175 x 16			
80.86 RAMP	880	0	0	0.9	0	16	0	0	0	0	0.85	0.03	97.8	97.8	0	0	0
	110 x 8													110 x 8			
80.893 RAMP	1200	0	0	1.2	0	15	0	0	0	0	1.16	0.04	133.3	133.3	0	80	0
	75 x 16													75 x 16			
81.1 RAMP	2960	0	0	3	0	36	0	0	0	0	2.85	0.11	328.9	328.9	0	50	0
	185 x 16													185 x 16			
82.251 MEDIAN	7800	144	0	0	0	0	0	0	0	0	0.00	0	0.0	0	0	0	867
	52 x 150																
81.8 TO 82.04	21600	0	0	21.6	LS	0	0	0	0	0	20.83	0.5	2400.0	800	102.2	20	0
	900 x 24													900 x 8	115 x 8		
	TOTALS:	**144**	**225**	**35.0**	**LS**	**141**	**50**	**50**	**2**	**2**	**34**	**1.0**	**3880.0**	**2075**	**302.2**	**220**	**867**

TABLE FOR EROSION CONTROL FOR 029 S-271 PCN I4QE

LOCATION	029 S-271 PCN I4QE SQUARE FOOTAGE WORK AREA	120E0600 CONTRACTOR FURNISHED BORROW EXCAVATION CUYD	120E4100 REPROFILE DITCH STA.	120E6300 WATER FOR VEGETATION MGAL	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SQYD	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0133 TYPE 3 TURF REINFORCEMENT MAT SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	734E0510 SHAPING FOR EROSION CONTROL BLANKET FT
82.773	560	0	0	0.6	3	0.54	0.02	62.2	62.2	0	10	70
	70 x 8								70 x 8			
81.865	2400	0	0	2.4	29	2.31	0.1	266.7	200	66.7	30	75
	75 x 32								75 x 24	75 x 8		
81.720	240	0	0	0.2	4	0.23	0.01	26.7	0	0	10	0
	30 x 8											
81.717	400	17	0	0.4	2	0.39	0.01	44.4	0	44.4	10	50
	50 x 8									50 x 8		
81.716	240	0	0	0.2	3	0.23	0.01	26.7	26.7	0	10	0
	30 x 8								30 x 8			
76.640	1200	0	1.5	1.2	0	1.16	0.05	133.3	0	133.3	0	150
	150 x 8									150 x 8		
	TOTALS:	**17**	**1.5**	**5**	**41**	**5**	**0.2**	**560.0**	**289**	**244.4**	**70**	**345**

TABLE FOR EROSION CONTROL FOR 229 N-271 PCN I4QF

LOCATION	229 N-271 PCN I4QF SQUARE FOOTAGE WORK AREA	110E0300 REMOVE CONCRETE GUTTER FT	120E0100 UNCLASSIFIED EXCAVATION CUYD	120E0600 CONTRACTOR FURNISHED BORROW EXCAVATION CUYD	120E6300 WATER FOR VEGETATION MGAL	230E0100 REMOVE AND REPLACE TOPSOIL LS	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	380E6110 INSTALL STEEL BAR IN PCC PAVEMENT EACH	650E4695 TYPE P9.5 CONCRETE GUTTER FT	700E0210 CLASS B RIPRAP TON	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SQYD	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	734E0510 SHAPING FOR EROSION CONTROL BLANKET FT	831E0110 TYPE B DRAINAGE FABRIC SQYD
8.86 TO 9	16320	0	17	0	16.3	LS	0	0	0		15.74	0.16	1813.3	604.4	0	680	0
	680 x 24													680 x 8			
8.800	112	0	8	0	0.1	0	0	0	0	12.0	0.11	0	12.4	0	0	0	22
	8 x 14																
8.61 TO 8.7	11760	0	0	0	11.8	LS	0	0	0		11.34	0.17	1306.7	0	0	0	0
	490 x 24																
5.95 TO 6.30	41592	0	0	0	41.6	LS	0	0	0		40.10	0.4	4621.3	1540.4	0	1733	0
	1733 x 24													1733 x 8			
3.213 RAMP	9760	0	0	0	9.8	LS	22	0	0		9.41	0.07	1084.4	542.2	0	610	0
	610 x 16													610 x 8			
0.906 BRIDGE	800	66	0	11	0.8	0	10	25	66		0.77	0	88.9	88.9	30	100	0
	100 x 8													100 x 8			
0.905	240	0	0	0	0.2	0	6	0	0		0.23	0	26.7	26.7	0	30	0
	30 x 8													30 x 8			
	TOTALS:	66	25	11	80.6	LS	38	25	66	12.0	78	0.8	9012.3	2803	30	3153	22

TABLE FOR EROSION CONTROL FOR 229 S-271 PCN I4QG

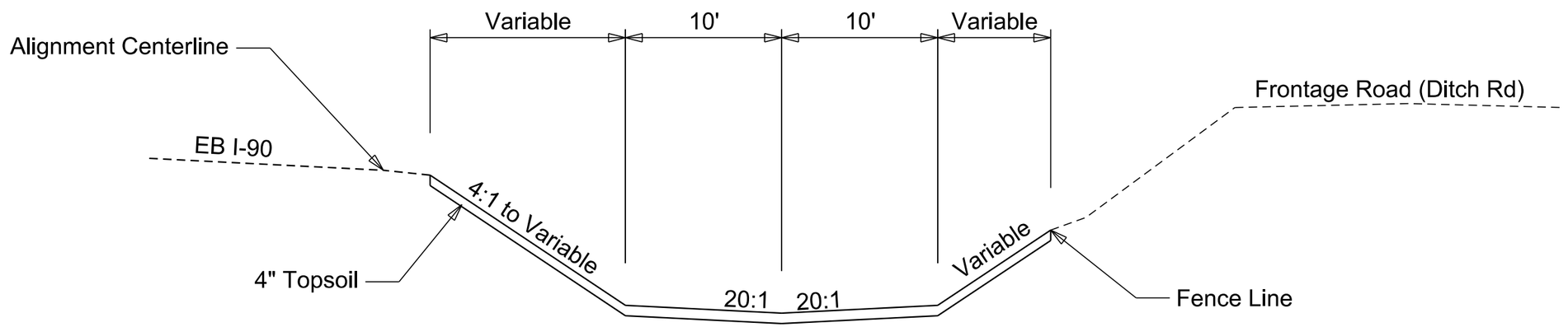
LOCATION	229 S-271 PCN I4QG SQUARE FOOTAGE WORK AREA	120E0100 UNCLASSIFIED EXCAVATION CUYD	120E4100 REPROFILE DITCH STA.	120E6300 WATER FOR VEGETATION MGAL	230E0020 CONTRACTOR FURNISHED TOPSOIL CUYD	700E0210 CLASS B RIPRAP TON	730E0251 SPECIAL PERMANENT SEED MIXTURE (1) LB	732E0200 FIBER MULCHING TON	734E0042 SOIL STABILIZER SQYD	734E0103 TYPE 3 EROSION CONTROL BLANKET SQYD	734E0154 12" DIAMETER EROSION CONTROL WATTLE FT	734E0510 SHAPING FOR EROSION CONTROL BLANKET FT	831E0110 TYPE B DRAINAGE FABRIC SQYD
9.96	360	53	0	0.4	0	75.0	0.35	0.01	40.0	0	0	0	120
	90 x 4												
9.96	720	0	0	0.7	13		0.69	0.02	80.0	80	90	90	0
	90 x 8									90 x 8			
0.95	2400	0	2.0	2.4	4		2.31	0.07	266.7	177.8	10	200	0
	200 x 12									200 x 8			
	TOTALS:	53	2.0	3.5	17	75.0	3	0.1	387.7	258	100	290	120

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2017 SF Area Erosion Plans	14	27

Plotting Date: 05/01/2017

TYPICAL SECTION
090 E-271 MRM 398.07 TO 398.24

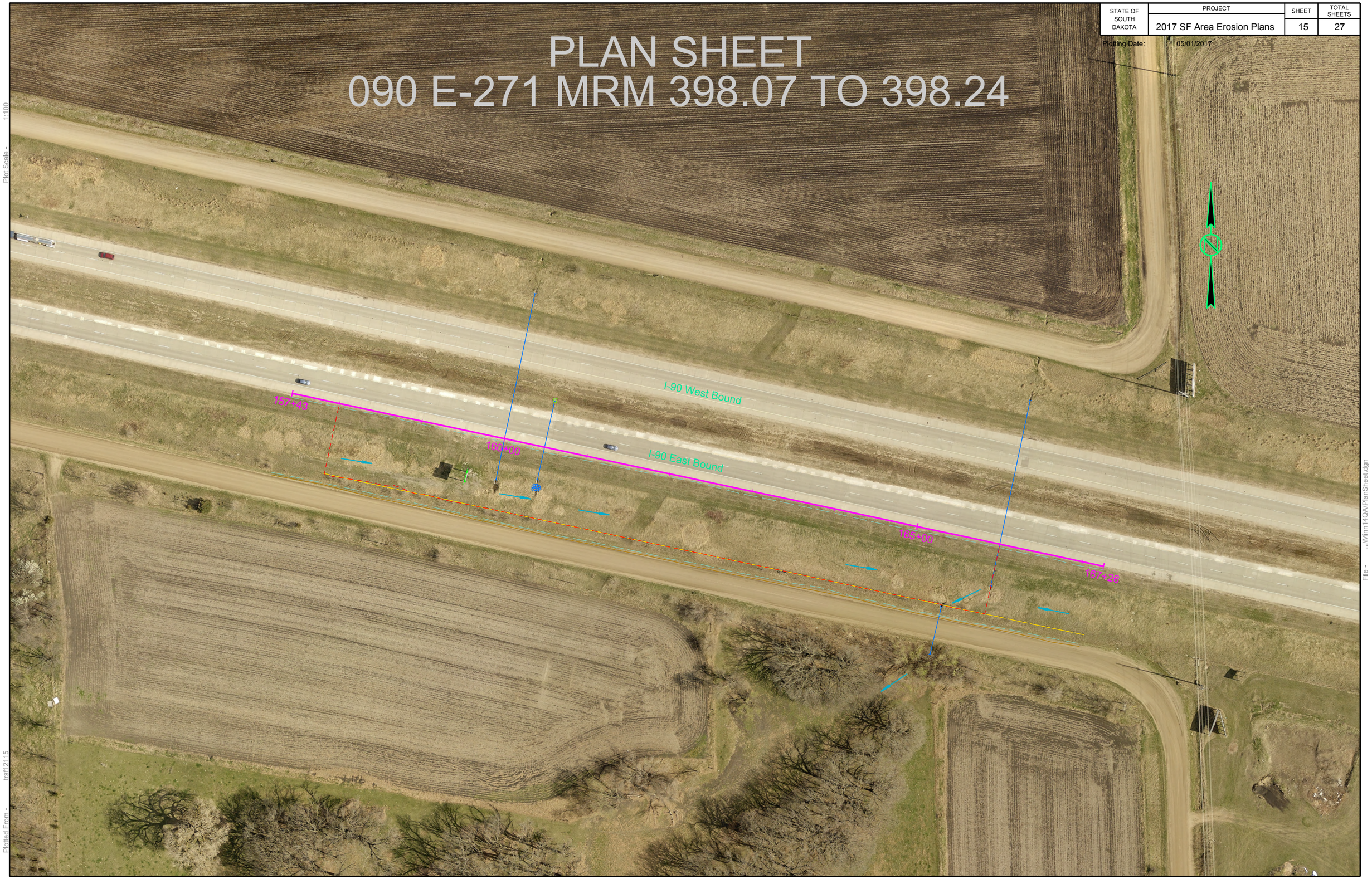
158+00 to 166+00



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2017 SF Area Erosion Plans	15	27

Plotting Date: 05/01/2017

PLAN SHEET
090 E-271 MRM 398.07 TO 398.24



Plot Scale - 1:100

Plotted From - tcsf12115

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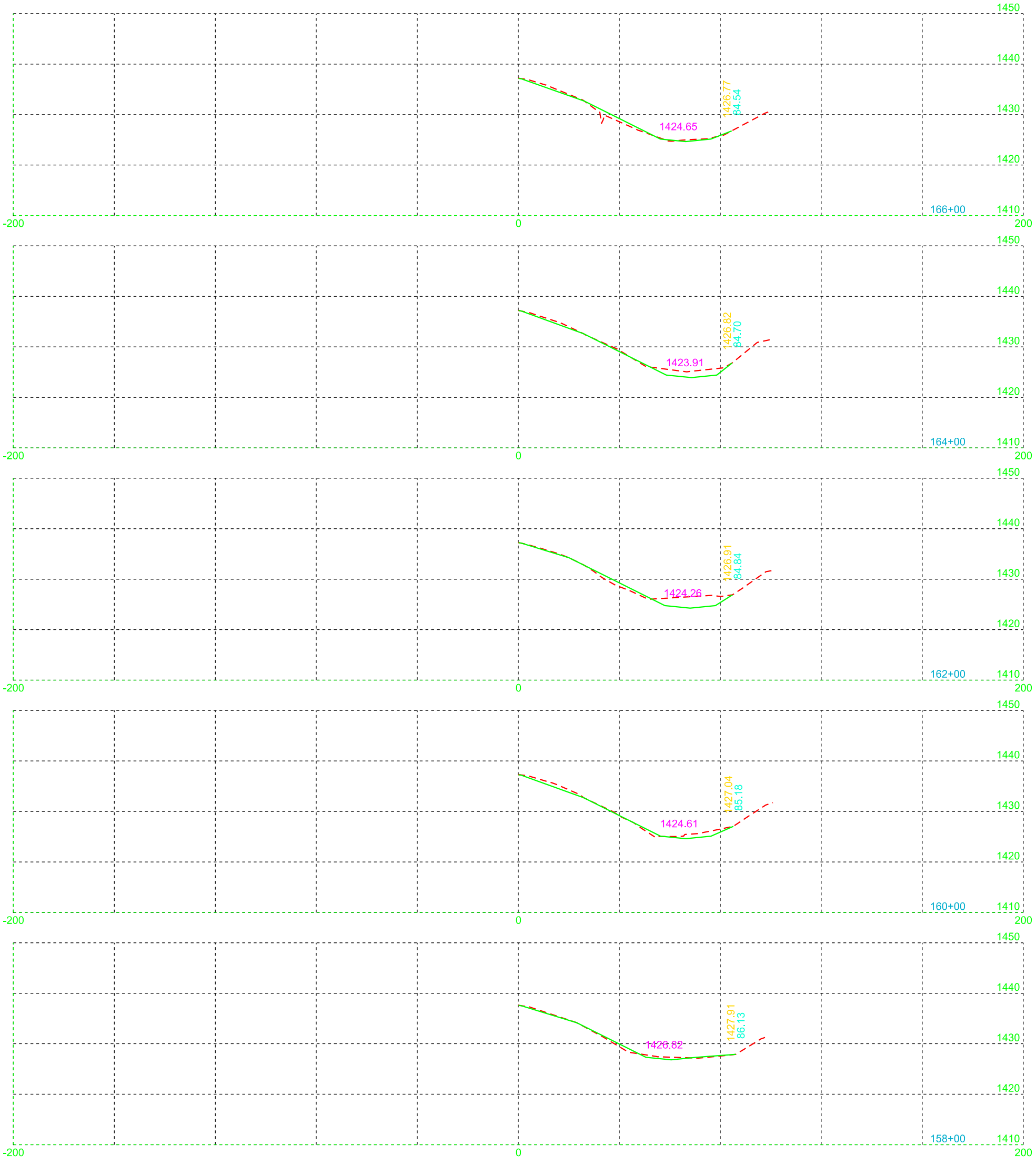


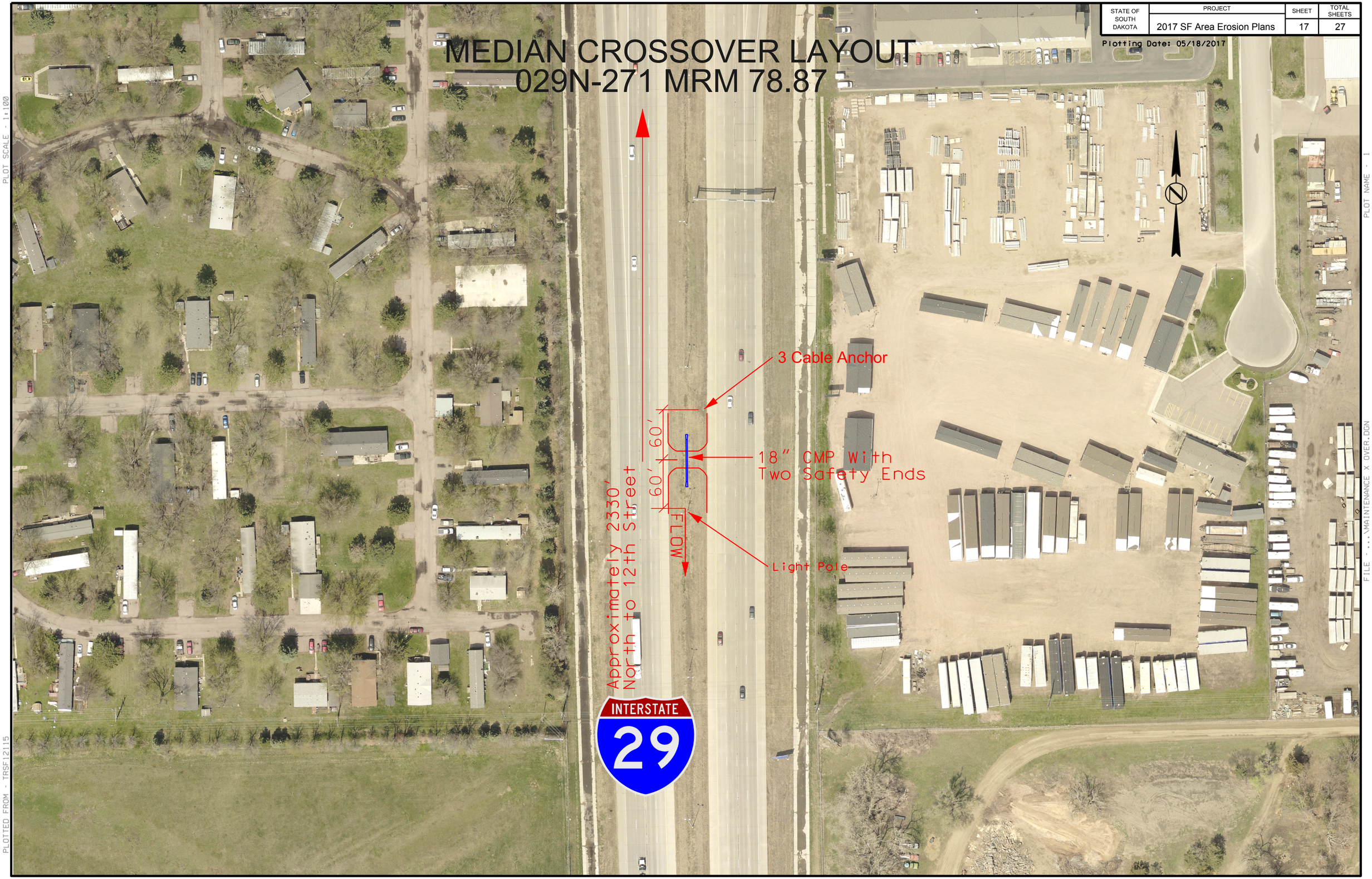
Plotting Date: 04/27/2017

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	2017 SF Area Erosion Plans	16	27

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	2017 SF Area Erosion Plans	17	27

Plotting Date: 05/18/2017

MEDIAN CROSSOVER LAYOUT
029N-271 MRM 78.87



PLOT SCALE - 1:100

PLOT NAME - 1

PLOTTED FROM - TRSF12115

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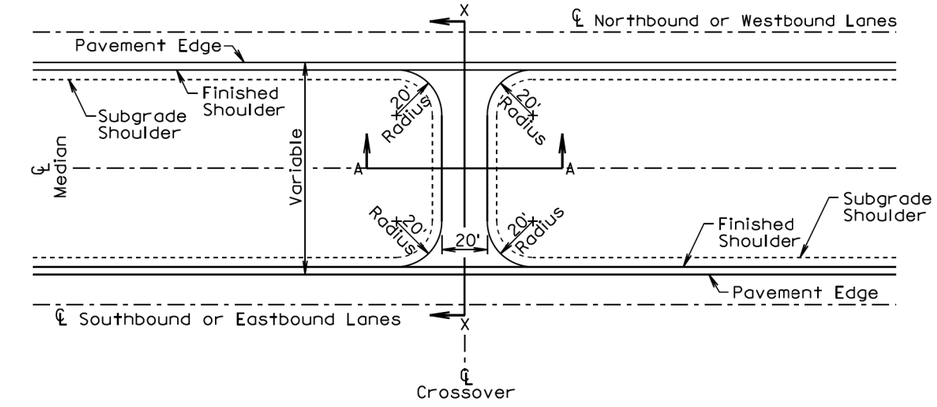
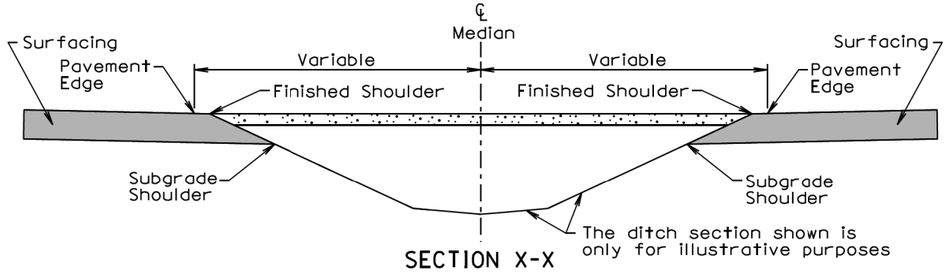
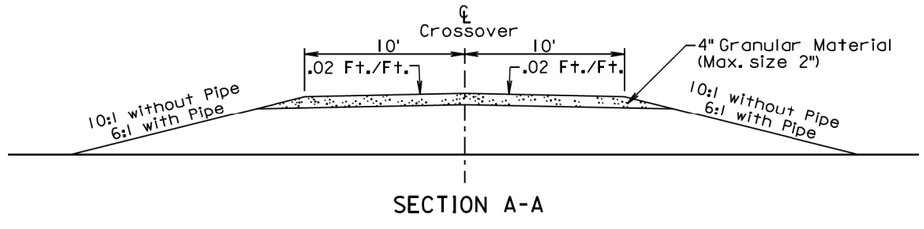


PLAN VIEW



SECTION X-X



SECTION A-A

GENERAL NOTES:

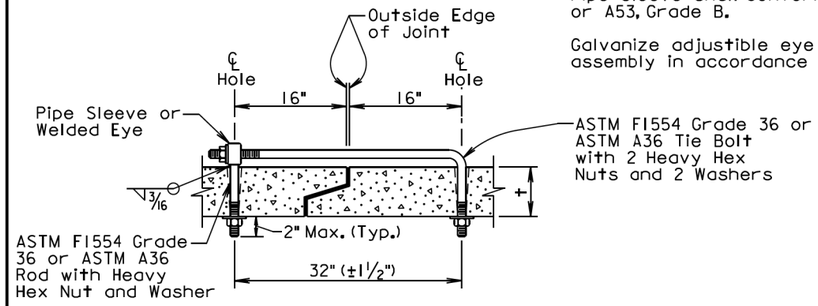
The inslopes of the maintenance crossovers shall be 6:1 when there is a pipe, 10:1 without pipe, or as specified in the plans.

The quantities of materials necessary for construction of the maintenance crossovers are as provided in the plans and shall be paid for at their respective contract unit prices for the various materials used.

February 14, 2011

Published Date: 2nd Qtr. 2017	SDDOT	STANDARD MAINTENANCE CROSSOVER FOR INTERSTATE HIGHWAYS	PLATE NUMBER 120.04
			Sheet 1 of 1

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

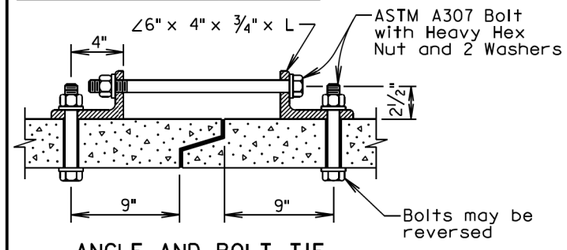
GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



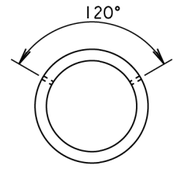
ANGLE AND BOLT TIE

GENERAL NOTES:

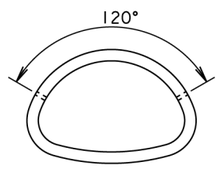
Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW "CIRCULAR"



END VIEW "ARCH"

GENERAL NOTES:

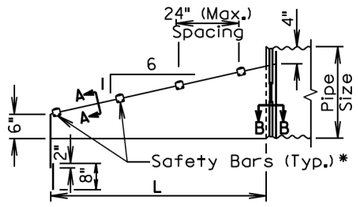
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

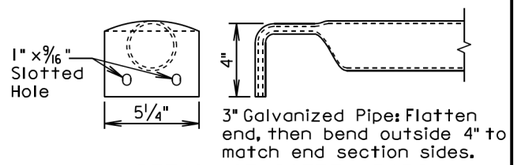
February 28, 2013

Published Date: 2nd Qtr. 2017	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1

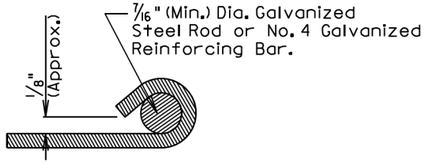


ELEVATION VIEW

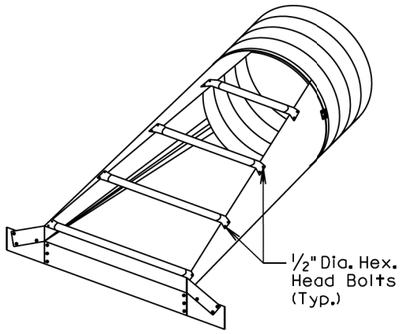
*Number of bars required will vary depending on the length of the end section.



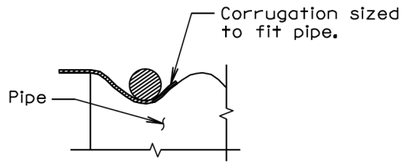
DETAIL OF SAFETY BARS



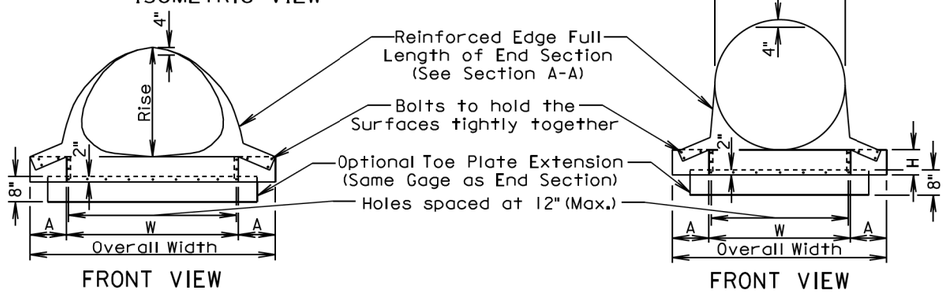
SECTION A-A



ISOMETRIC VIEW

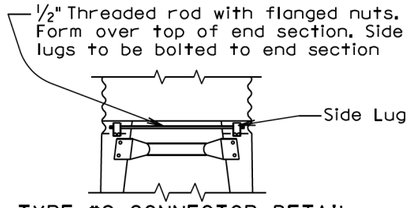


SECTION B-B

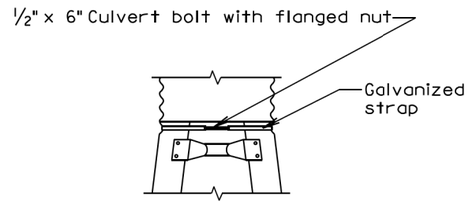


FRONT VIEW

FRONT VIEW



TYPE #2 CONNECTOR DETAIL
(For 30" and Larger)
(For 21" X 15" and Larger)



TYPE #1 CONNECTOR DETAIL
(For 15" Through 24")

June 26, 2015

Published Date: 2nd Qtr. 2017	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 1 of 2

ARCH C.M.P. SAFETY ENDS

Equv. Dia. (Inch)	(Inches) Span	Rise	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
18	21	15	.064	16	8	6	27	43	6:1	30
21	24	18	.064	16	8	6	30	46	6:1	48
24	28	20	.064	16	8	6	34	50	6:1	60
30	35	24	.079	14	12	9	41	65	6:1	84
36	42	29	.109	12	12	9	48	72	6:1	114
42	49	33	.109	12	16	12	55	87	6:1	138
48	57	38	.109	12	16	12	63	95	6:1	168
54	64	43	.109	12	16	12	70	102	6:1	198
60	71	47	.109	12	16	12	77	109	6:1	222
72	83	57	.109	12	16	12	89	121	6:1	282

CIRCULAR C.M.P. SAFETY ENDS

Pipe Dia. (Inch)	Min. Thick. Inch	Gage	Dimensions (Inches) A	H	W	Overall Width	L Dimensions Slope	Length (Inch)
15	.064	16	8	6	21	37	6:1	30
18	.064	16	8	6	24	40	6:1	48
21	.064	16	8	6	27	43	6:1	66
24	.064	16	8	6	30	46	6:1	84
30	.109	12	12	9	36	60	6:1	120
36	.109	12	12	9	42	66	6:1	156
42	.109	12	16	12	48	80	6:1	192
48	.109	12	16	12	54	86	6:1	228
54	.109	12	16	12	60	92	6:1	264
60	.109	12	16	12	66	98	6:1	300

GENERAL NOTES:

Safety ends shall be fabricated from galvanized steel conforming to the requirements of the Specifications.

Safety bars shall be fabricated from steel schedule 40 pipe in conformance with ASTM A53, grade B or HSS 3.5X.216 in conformance with ASTM A500, grade B.

Slotted holes for safety bar attachment shall be provided for all end sections.

Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs.

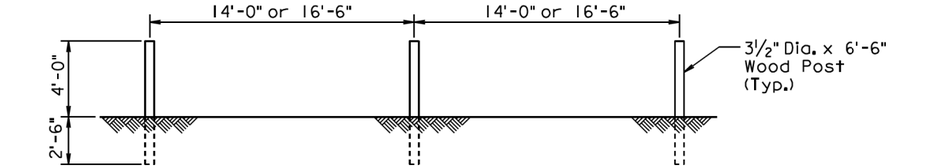
When stated in the plans, optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high.

Installation shall be performed in accordance with the Specifications.

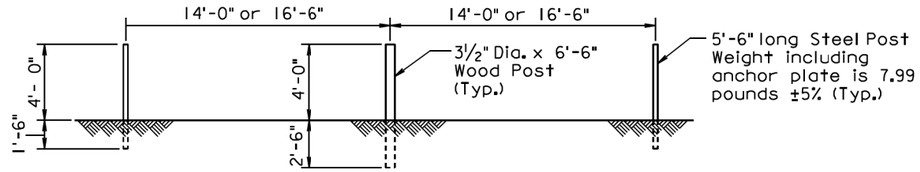
Cost of all work and materials required for fabrication and installation of safety ends shall be incidental to the bid items for the various sizes of safety ends.

June 26, 2015

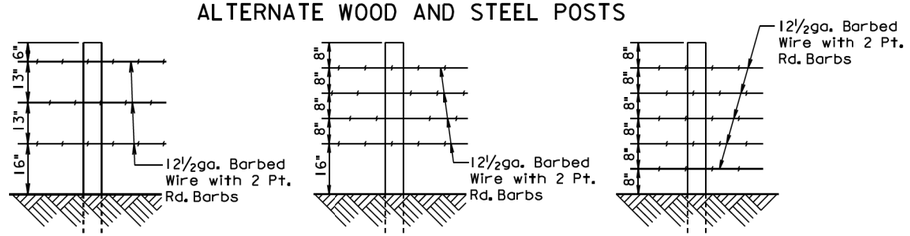
Published Date: 2nd Qtr. 2017	SDDOT	C. M. P. SAFETY ENDS	PLATE NUMBER 450.38
			Sheet 2 of 2



ALL WOOD POSTS



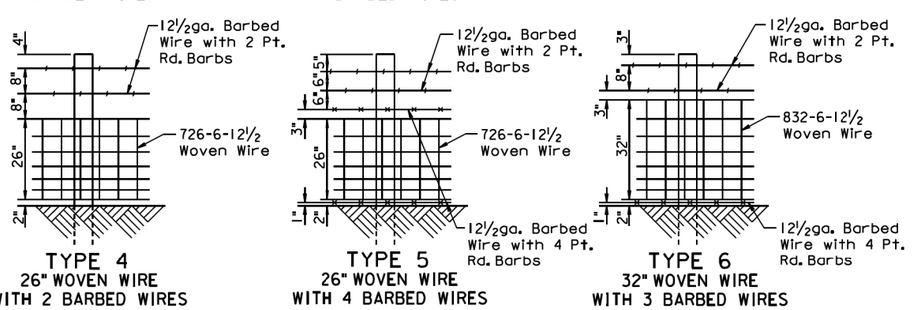
ALTERNATE WOOD AND STEEL POSTS



TYPE 1
3 BARBED WIRES

TYPE 2
4 BARBED WIRES

TYPE 3
5 BARBED WIRES



TYPE 4
26" WOVEN WIRE
WITH 2 BARBED WIRES

TYPE 5
26" WOVEN WIRE
WITH 4 BARBED WIRES

TYPE 6
32" WOVEN WIRE
WITH 3 BARBED WIRES

TYPE OF FENCE		LINE POST SPACING	BARBED WIRE		WOVEN WIRE
TYPE	DESCRIPTION		WIRE GAGE	NUMBER AND SHAPE OF BARBS	STYLE OR DESIGN NO.
1	3 Barbed Wires	16'-6"	12½	2 Point Round	—
2	4 Barbed Wires	16'-6"	12½	2 Point Round	—
3	5 Barbed Wires	16'-6"	12½	2 Point Round	—
4	26" Woven Wire with 2 Barbed Wires	14'-0"	12½	2 Point Round	726-6-12½
5	26" Woven Wire with 4 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 2 wires with 4 Pt. Rd.	726-6-12½
6	32" Woven Wire with 3 Barbed Wires	14'-0"	12½	2 wires with 2 Pt. Rd. 1 wire with 4 Pt. Rd.	832-6-12½

GENERAL NOTES:

Fence types designated on the plans that are followed by the letter S shall have smooth (barbless) wires.

When type 5S or 6S is designated the bottom wire may be barbed, smooth, or left off.

All degrees of curvature stated for fence are at centerline of roadway.

September 14, 2009

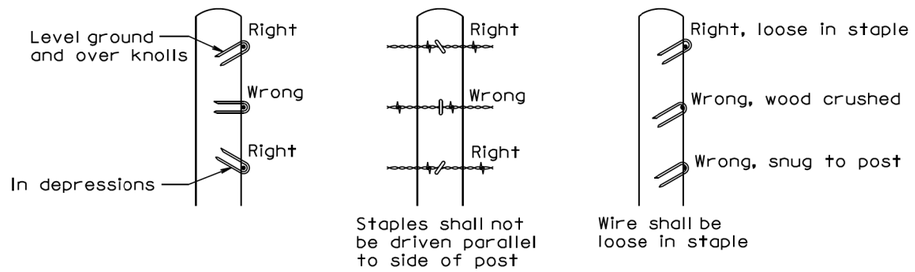
Published Date: 2nd Qtr. 2017

SDDOT

RIGHT-OF-WAY FENCE

PLATE NUMBER 620.01

Sheet 1 of 1



STAPLE INSTALLATION

GENERAL NOTES:

The Right-of-Way fence shall consist of barbed wire or a combination of woven wire and barbed wire. The barbed wire and/or woven wire shall be fastened to all wood posts or fastened to alternating wood and steel posts. Only wood posts shall be used for brace panels. Gates shall be of the type designated in the plans or as otherwise directed by the Engineer. Fence shall be constructed conforming to the details on the standard plates and in the plans unless otherwise directed by the Engineer.

Right-of-Way fence on Interstate Projects shall be constructed one foot within the Interstate Right-of-Way lines except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Right-of-Way fence other than on Interstate Projects shall be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

Barbs shall be fabricated from zinc coated 14 ga. wire. Two point barbs shall be wrapped twice around one main strand at 4" spacings and the four point barbs shall be interlocked and wrapped around both main strands at 5" spacings.

The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts shall be as stated in AASHTO M281. Woven wire shall conform to design and specifications of ASTM A116 and barbed wire shall conform to ASTM A121.

December 23, 2004

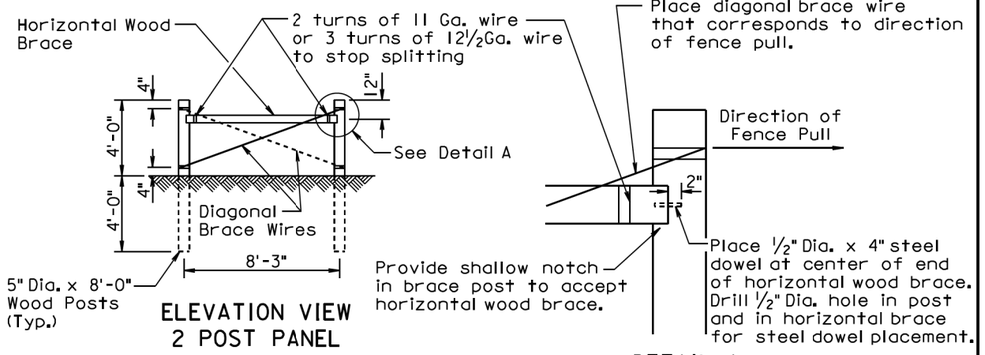
Published Date: 2nd Qtr. 2017

SDDOT

STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES

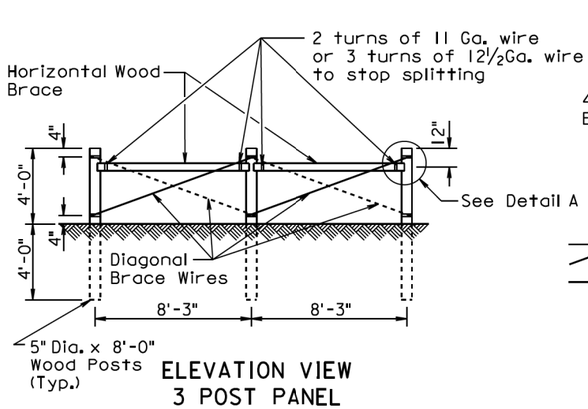
PLATE NUMBER 620.02

Sheet 1 of 1

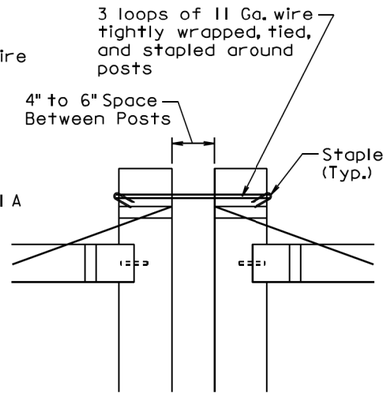


ELEVATION VIEW
2 POST PANEL

DETAIL A



ELEVATION VIEW
3 POST PANEL



DETAIL B

GENERAL NOTES:

Two Post Panels shall be installed at least every 1320' between corners.

Two Post Panels shall be installed at any sharp vertical angle crest points and as directed by the Engineer.

Horizontal wood braces shall consist of 4" dia. x 8' wood posts or rough 4" x 4" x 8' timbers.

Diagonal brace wires shall be fabricated with 4 strands of 9 Ga. galvanized wire twisted tight. The diagonal brace wires shall be installed in accordance with the direction of the fence pull. Two diagonal brace wires are required if fence pull is in both directions.

December 23, 2004

Published Date: 2nd Qtr. 2017	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 1 of 3

SPACING OF 2 POST PANELS WITHIN CURVES	
DEGREE OF CURVE	SPACING OF 2 POST PANEL
less than 3°15'	** 1320'
3°15' and greater	**At P.C., P.T., and at every 1320' between P.C. and P.T.

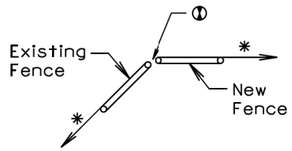
GENERAL NOTE:

All degrees of curvature stated for fence are at centerline of roadway.

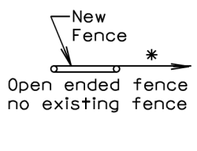
* If fence length is less than 600' to next corner use a 2 post panel.
If fence length is greater than 600' to next corner use a 3 post panel.

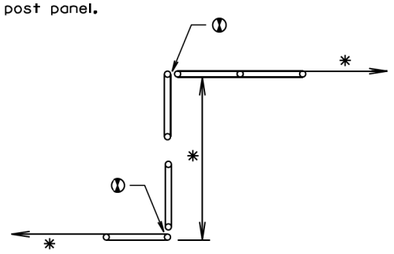
** Fence lengths greater than 1320' and less than 2640' place 2 Post Panel approximately at midpoint.

① See Detail B on Sheet 1 of 3.

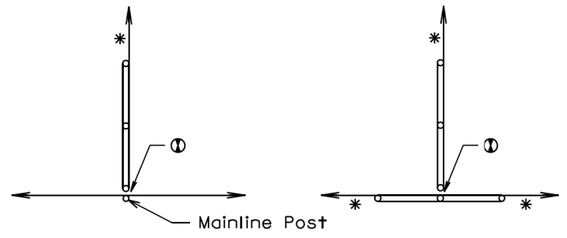


BEGIN OR END FENCE
(where new fence ties into existing fence)

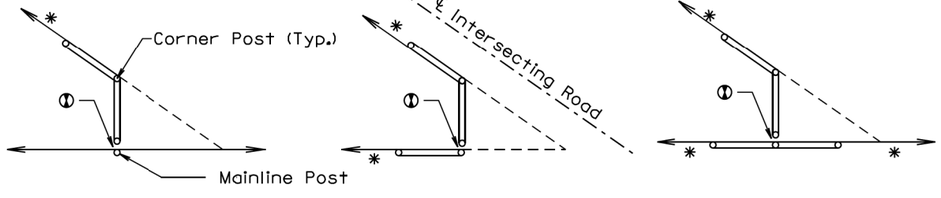




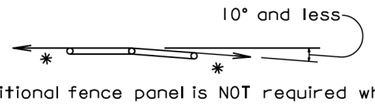
SHORT JOGS IN FENCE



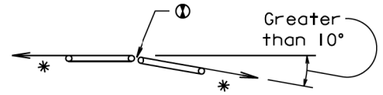
CROSS FENCE



SHARP ANGLES IN CROSS FENCE



Additional fence panel is NOT required when an angle in the mainline fence is 10° and less.

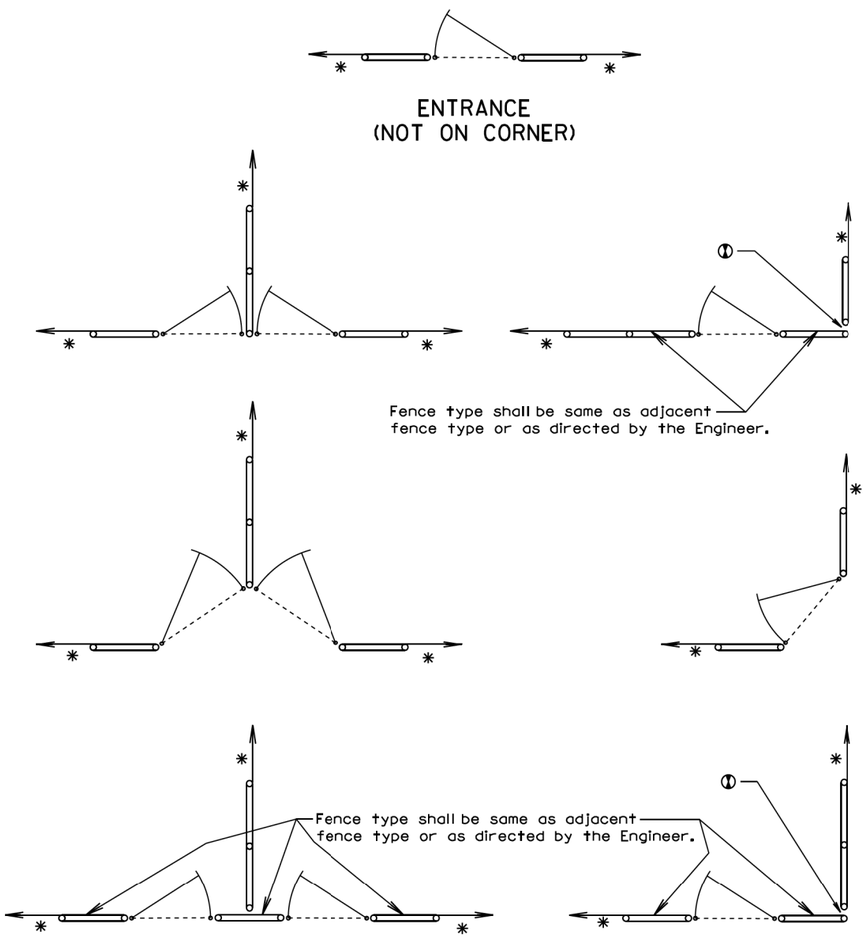


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

ANGLES IN MAINLINE FENCE

December 23, 2004

Published Date: 2nd Qtr. 2017	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03
			Sheet 2 of 3



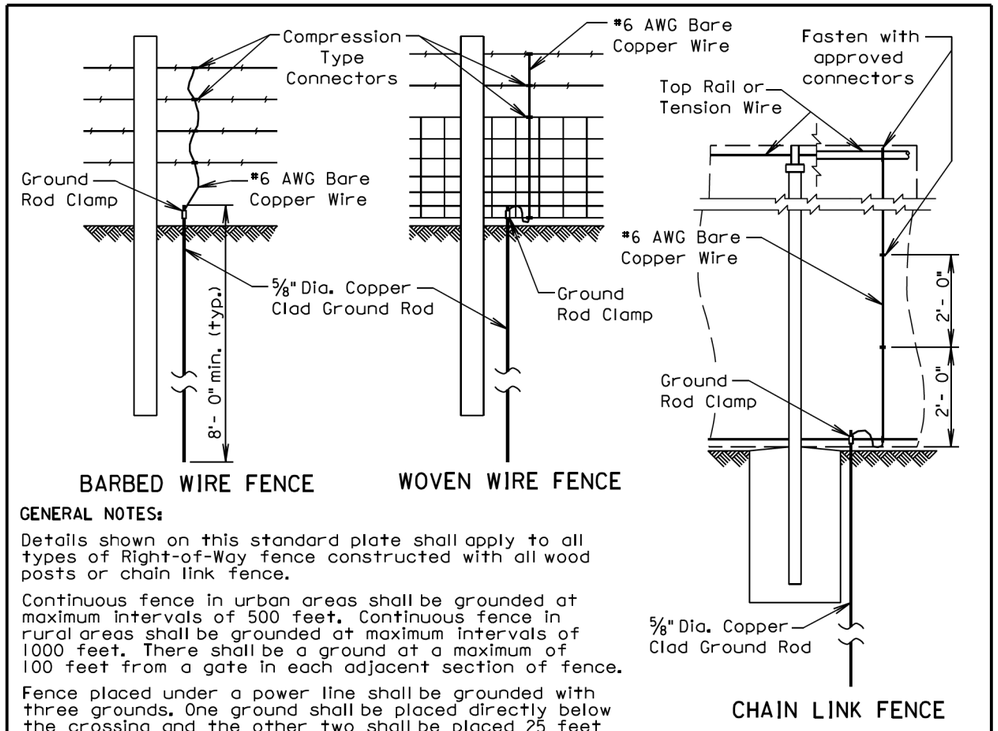
GATES

* If fence length is less than 600' to next corner use a 2 post panel.
  If fence length is greater than 600' to next corner use a 3 post panel.

① See Detail B on Sheet 1 of 3.

December 23, 2004

Published Date: 2nd Qtr. 2017	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 3 of 3



GENERAL NOTES:

Details shown on this standard plate shall apply to all types of Right-of-Way fence constructed with all wood posts or chain link fence.

Continuous fence in urban areas shall be grounded at maximum intervals of 500 feet. Continuous fence in rural areas shall be grounded at maximum intervals of 1000 feet. There shall be a ground at a maximum of 100 feet from a gate in each adjacent section of fence.

Fence placed under a power line shall be grounded with three grounds. One ground shall be placed directly below the crossing and the other two shall be placed 25 feet to 50 feet away, one on each side.

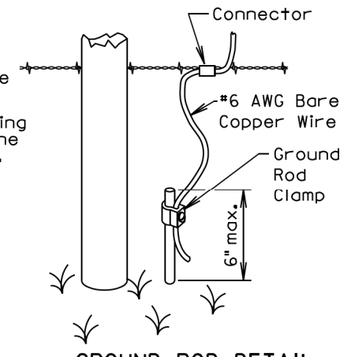
One ground shall be placed directly below each telephone or cable crossing.

Ground rods shall be located on the post side of the fence and shall be as close as possible to the post and fence.

The cost of furnishing and placing all materials for grounding shall be incidental to the contract unit price per Ft for the respective Right-of-Way fence or chain link fence bid item.

The approximate quantites of materials per each installation of a ground are:

- 1 ground rod clamp.
- 1 5/8" dia. X 8' long copper clad ground rod
- 1 #6 AWG bare copper wire; 7' long for Right-of-Way fence or 10' long for chain link fence.
- Compression type or other type of connectors:
  - 26" woven wire shall have a total of two connectors, one secured to the top and one secured to the bottom.
  - 32" woven wire shall have a total of three connectors, one secured to the top, one secured to the middle, and one secured to the bottom.
  - One connector shall be used for each strand of barbed wire.
  - A minimum of 3 connectors shall be installed on chain link fence, the connectors shall be placed vertically at every two foot increment and connectors shall be placed on the top and bottom tension wires or top rail.



GROUND ROD DETAIL

March 31, 2000

Published Date: 2nd Qtr. 2017	SDDOT	FENCE GROUNDING	PLATE NUMBER 620.11 Sheet 1 of 1

◎ Reflectorized Drum

■ Channelizing Device

▭ Movable Concrete Barrier

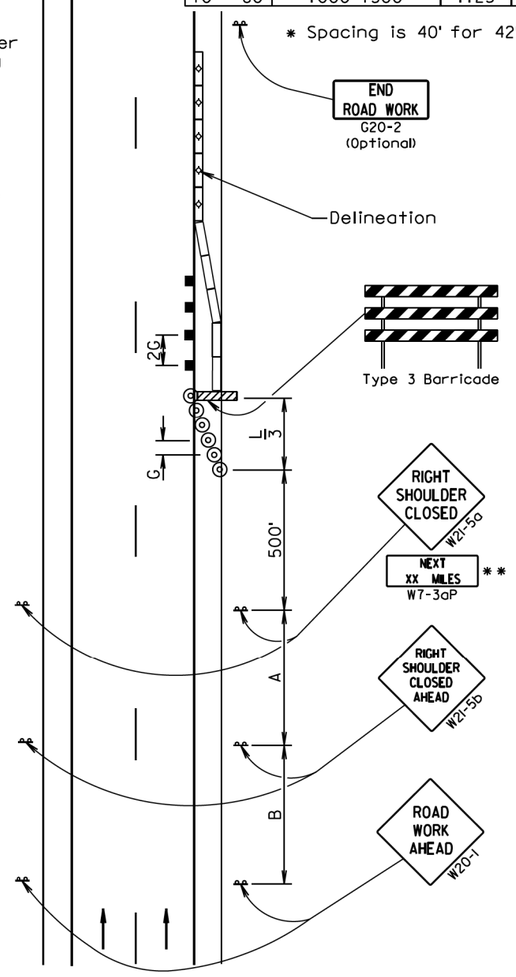
** For distances ½ mile or greater.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

This standard plate shows one method which may be used to close a shoulder of a roadway for a long term project. The Highway Authority will determine if the use of barriers is required. If barriers are required, the layout details will be included elsewhere in the plans.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	180	25
35 - 40	350	320	25
45	500	600	25
50	500	600	50 *
55	750	660	50 *
60 - 65	1000	780	50 *
	(A) (B)		
70 - 80	1000 1500	1125	50 *

* Spacing is 40' for 42" cones.



June 3, 2016

Published Date: 2nd Qtr. 2017	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES SHOULDER CLOSED	PLATE NUMBER 634.61
			Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
	(A) (B) (C)
70 - 80	1000 1500 2640

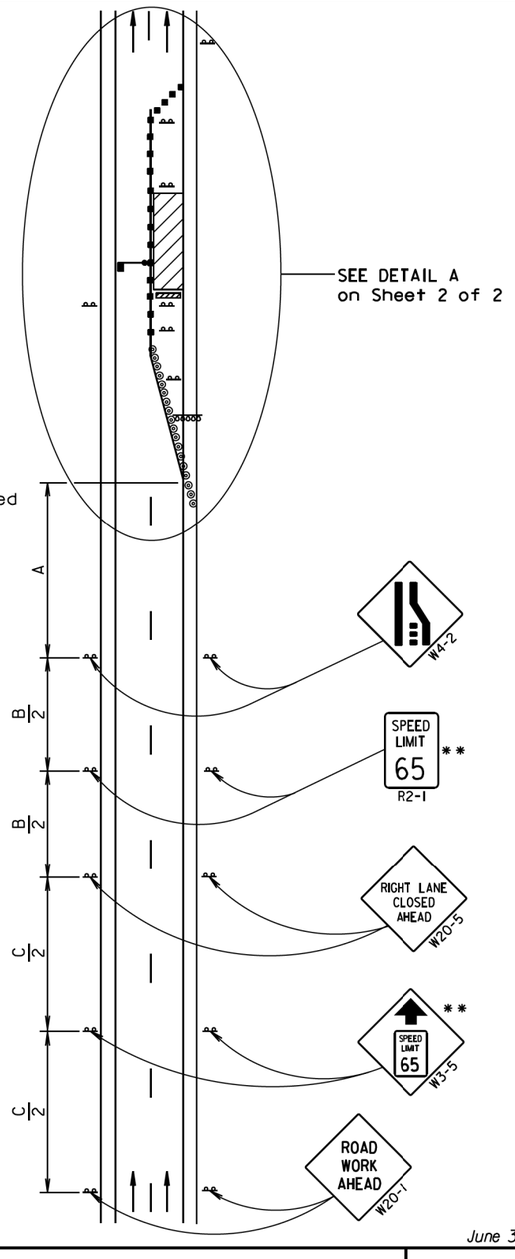
** Speed appropriate for location.

◎ Reflectorized Drum

■ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



June 3, 2016

Published Date: 2nd Qtr. 2017	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 1 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 - 30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs shall be covered or removed when workers are not present.

■—● Flagger (As Necessary)

◎ Reflectorized Drum

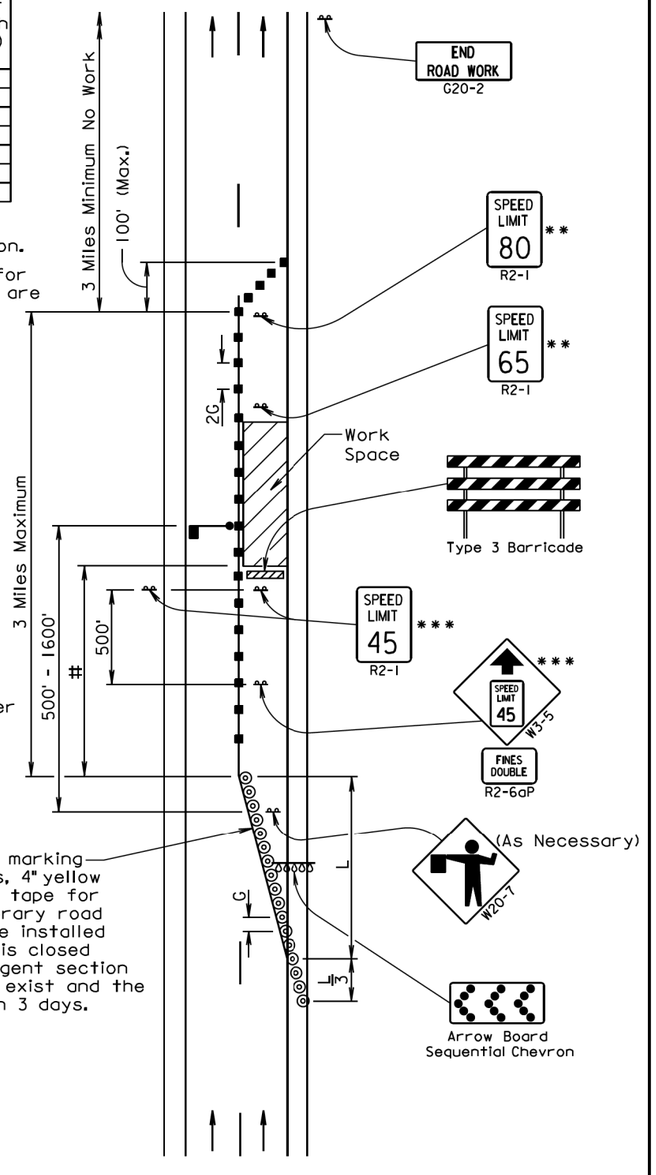
■ Channelizing Device

The Work Space shall be a minimum of 500' from the end of the taper.

The FLAGGER sign shall be used whenever there is a Flagger present.

The channelizing devices shall be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.



4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary road markers at 5' spacing shall be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.

DETAIL A

June 3, 2016

Published Date: 2nd Qtr. 2017	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	(B)	L (Feet)
45 - 50	500		600
55	750		660
60 - 65	1000		780
	(A)	(B)	
70 - 80	1000	1500	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

■ Channelizing Device

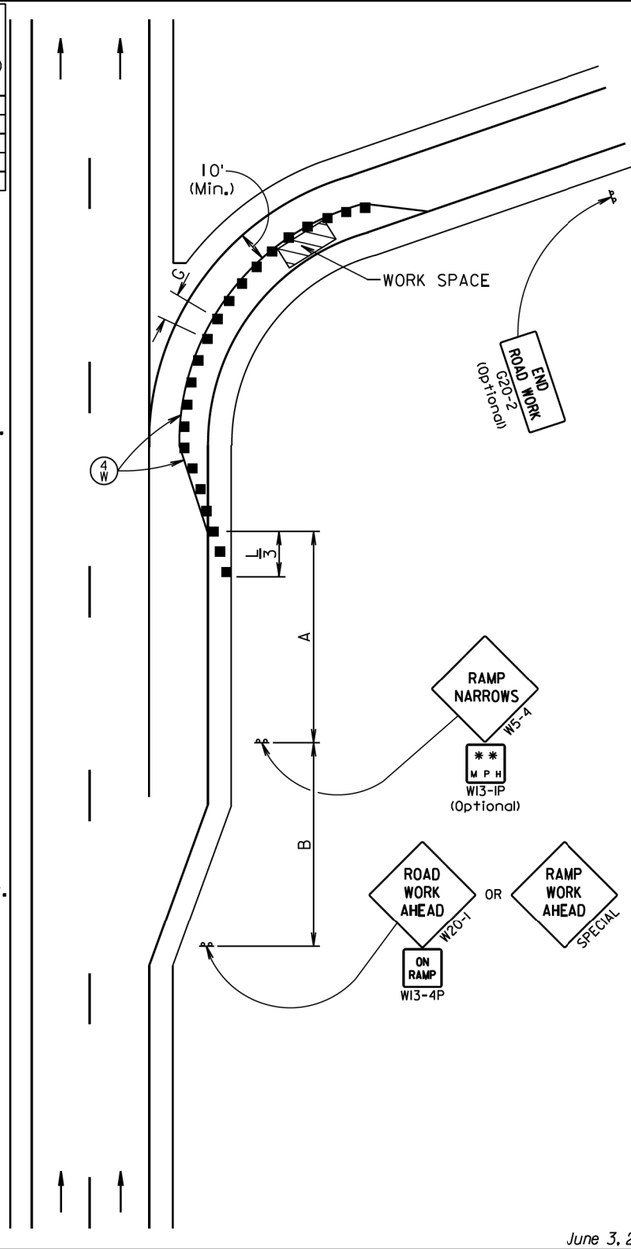
(4W) 4" White Temporary Pavement Marking

** Need and safe speed to be determined by the Highway Authority.

Temporary pavement markings shall be used if traffic control must remain overnight.

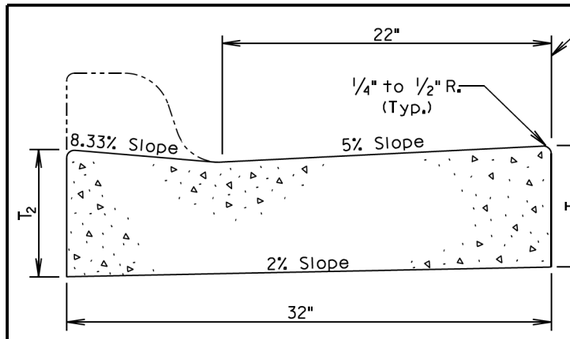
The channelizing devices shall be drums or 42" cones if traffic control must remain overnight.

Truck off-tracking should be considered when determining whether the 10-foot minimum lane width is adequate.



June 3, 2016

Published Date: 2nd Qtr. 2017	SDDOT	GUIDES FOR TRAFFIC CONTROL DEVICES PARTIAL EXIT RAMP CLOSURE	PLATE NUMBER 634.69
			Sheet 1 of 1

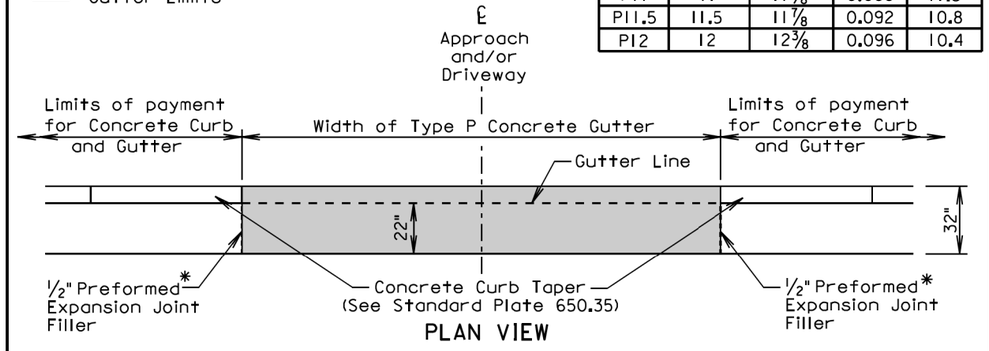


TRANSVERSE SECTION

The stated radii on the plans and cross sections refer to this line and it shall also be the basis for horizontal linear foot measurement and payment.

Type	T_1 (Inches)	T_2 (Inches)	Cu. Yd. Per Lin. Ft.	Lin. Ft. Per Cu. Yd.
P6	6	6 3/8	0.047	21.2
P7	7	7 3/8	0.055	18.1
P8	8	8 3/8	0.064	15.7
P8.5	8.5	8 7/8	0.068	14.8
P9	9	9 3/8	0.072	13.9
P9.5	9.5	9 7/8	0.076	13.2
P10	10	10 3/8	0.080	12.5
P10.5	10.5	10 7/8	0.084	11.9
P11	11	11 3/8	0.088	11.3
P11.5	11.5	11 7/8	0.092	10.8
P12	12	12 3/8	0.096	10.4

Type P Concrete Gutter Limits



PLAN VIEW

* Joint will not be needed if concrete curb and gutter and type P concrete gutter is placed at the same time. If the 1/2" Preformed Expansion Joint Filler is provided, then the joint shall be sealed in accordance with Standard Plate 650.90.

GENERAL NOTES:

The concrete for the Type P Concrete Gutter shall comply with the requirements of the Specifications for Class M6 Concrete.

When concrete gutter longitudinally adjoins new concrete pavement, the method of attachment shall be by one of the methods shown on Standard Plate 380.11.

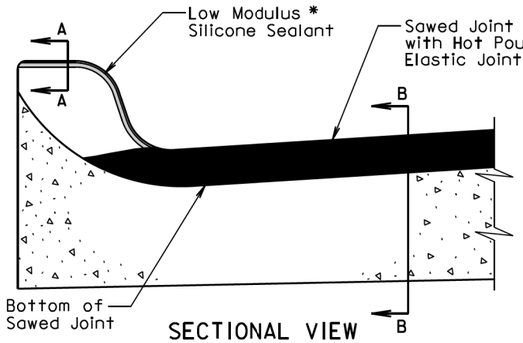
Transverse contraction joints shall be constructed at 10' intervals in the concrete gutter except when concrete gutter is constructed adjacent to mainline PCC pavement. When concrete gutter is constructed adjacent to mainline PCC pavement, a transverse contraction joint shall be constructed in the concrete gutter at each mainline PCC pavement transverse contraction joint location.

When concrete gutter is placed monolithically with mainline PCC pavement, the transverse contraction joints in the concrete gutter shall be sawed and sealed the same as the transverse contraction joints in the mainline PCC pavement.

When concrete gutter is not placed monolithically with the mainline PCC pavement and when the adjacent mainline surfacing is not PCC concrete, the transverse contraction joints in the concrete gutter shall be 1 1/2 inches deep if formed in the fresh concrete using a suitable grooving tool. If a saw is used to cut the contraction joints, then the depth of the joint shall be at least 1/4 the thickness of the concrete.

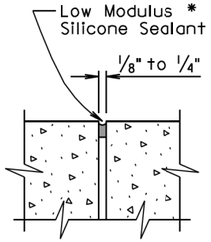
June 26, 2015

Published Date: 2nd Qtr. 2017	SDDOT	TYPE P CONCRETE GUTTER	PLATE NUMBER 650.30
			Sheet 1 of 1

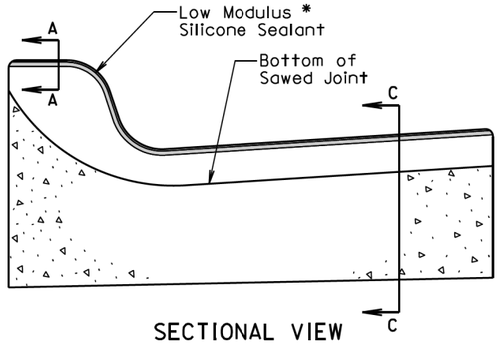


SECTIONAL VIEW

(Curb and Gutter Placed Monolithic with Adjacent Mainline PCC Pavement)

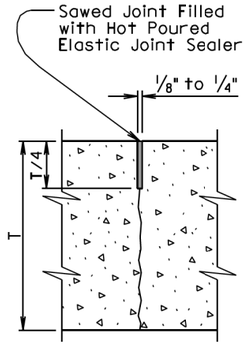


SECTION A-A

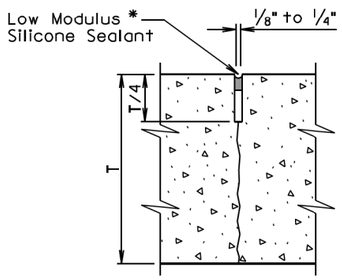


SECTIONAL VIEW

(Curb and Gutter not Placed Monolithic with Adjacent Mainline PCC Pavement or Mainline Surfacing is not PCC Pavement)



SECTION B-B



SECTION C-C

* The silicone sealant shall be placed such that it completely seals the joint and is bonded to the sides of the clean joint as approved by the Engineer.

September 6, 2013

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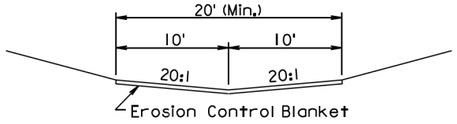
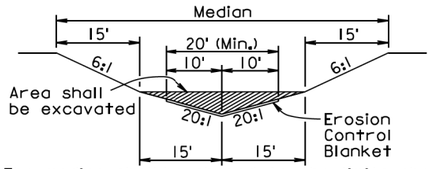
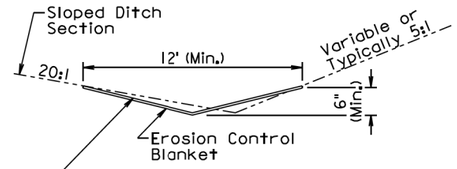


STANDARD DITCH SECTION

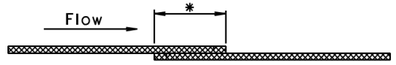


The median shall be shaped to the limits shown in this detail where the erosion control blanket will be placed.

MEDIAN SECTION



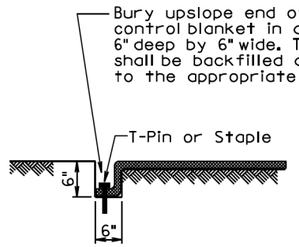
SLOPED DITCH SECTION



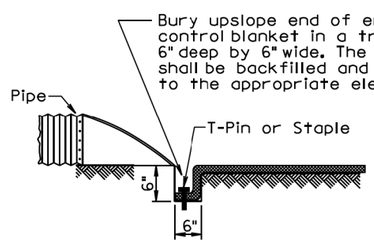
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas shall be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket shall be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket shall be buried in a trench 6" wide by 6" deep. There shall be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket shall be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor shall fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections shall be shaped when installing the erosion control blanket. All costs for shaping the ditches shall be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

December 23, 2004

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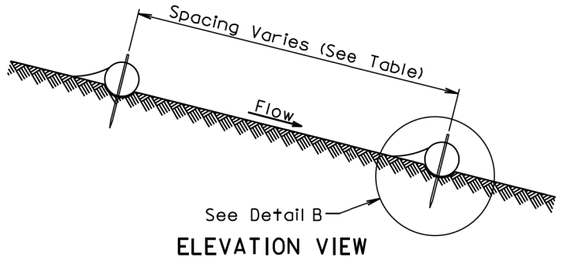
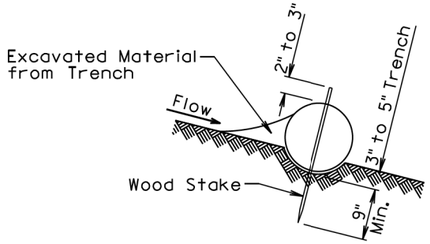
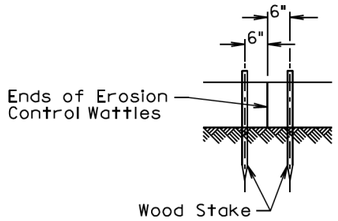


ELEVATION VIEW
CUT OR FILL SLOPE INSTALLATION

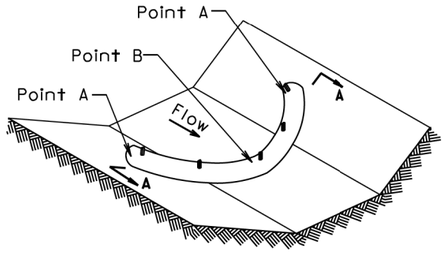
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft)
1:1	10
2:1	20
3:1	30
4:1	40



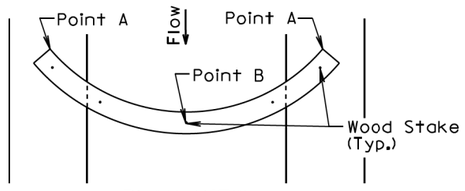
DETAIL B
(TYPICAL OF ALL INSTALLATIONS)



DETAIL C

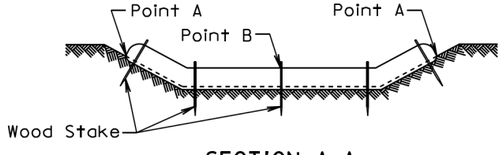


ISOMETRIC VIEW
DITCH INSTALLATION



PLAN VIEW
DITCH INSTALLATION

DITCH INSTALLATION	
Grade	Spacing (Ft)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

December 23, 2004

Published Date: 2nd Qtr. 2017	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

GENERAL NOTES:

At cut or fill slope installations, wattles shall be installed along the contour and perpendicular to the water flow.

At ditch installations, point A must be higher than point B to ensure that water flows over the wattle and not around the ends.

The Contractor shall dig a 3" to 5" trench, install the wattle tightly in the trench so that daylight can not be seen under the wattle, and then compact the soil excavated from the trench against the wattle on the uphill side. See Detail B.

The stakes shall be 1"x2" or 2"x2" wood stakes, however, other types of stakes such as rebar may be used only if approved by the Engineer. The stakes shall be placed 6" from the ends of the wattles and the spacing of the stakes along the wattles shall be 3' to 4'.

Where installing running lengths of wattles, the Contractor shall butt the second wattle tightly against the first and shall not overlap the ends. See Detail C.

The Contractor and Engineer shall inspect the erosion control wattles once every week and within 24 hours after every rainfall event greater than ½". The Contractor shall remove, dispose, or reshape the accumulated sediment when necessary as determined by the Engineer.

Sediment removal, disposal, or necessary shaping shall be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping shall be incidental to the contract unit price per cubic yard for "Remove Sediment".

All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials shall be incidental to the contract unit price per foot for the corresponding erosion control wattle bid item.

All costs for removing the erosion control wattle from the project including labor, equipment, and materials shall be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

December 23, 2004

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